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SPECIFICATIONS

WIDTH	:	62.5 in
DEPTH	:	59 in
HEIGHT	:	72 in
WEIGHT	:	Approx. 475 kg. (1200 lbs.)
POWER, MAXIMUM CURRENT	:	900W 7.5A (AC 120V 60 Hz AREA)
MONITOR	:	25 INCH MEDIUM RESOLUTION COLOR MONITOR X 2

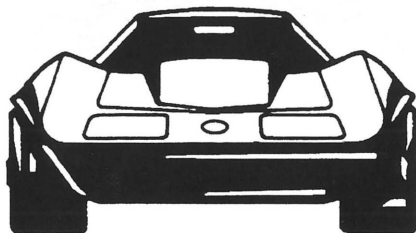
NOTE: Descriptions in this manual are subject to change without prior notice.

INTRODUCTION OF THE OWNER'S MANUAL

SEGA ENTERPRISES, LTD., supported by its high electronic technology of LSIs, microprocessors, etc. and a wealth of experience, has for more than 30 years been supplying various innovative and popular game machines to the world market. This Owner's Manual is intended to provide detailed descriptions together with all the necessary information covering the general operation of electronic assemblies, electromechanicals, servicing control, spare parts, etc. as regards DAYTONA USA TWIN TYPE, a new SEGA product.

This manual is intended for those who have knowledge of electricity and technical expertise especially in ICs, CRTs, microprocessors, etc. Carefully read this manual to acquire sufficient knowledge before working on the machine. Should there be a malfunction, non-technical personnel should under no circumstances touch the interior system. Should such a case arise, contact our Main Office or the closest branch office listed as follows:

SEGA ENTERPRISES, INC. (U.S.A.)/CUSTOMER SERVICE
45133 Industrial Drive, Fremont, California 94538, U.S.A.
Phone: (415) 802-1750
Fax: (415) 802-1754



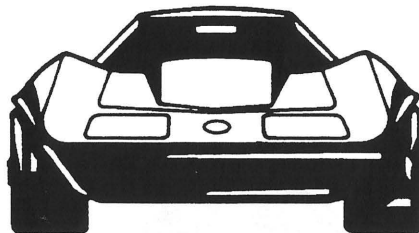
1. HANDLING PRECAUTIONS

When installing or inspecting the machine, be very careful of the following points and pay attention to ensure that the player can enjoy the game safely.

- Be sure to turn the power off before working on the machine.
- To insert or pull out the plug quickly is dangerous.
- It is necessary to make sure that the power cord or the grounding wire is not exposed on the road, etc. in a manner so as to be dangerous. Make sure that grounding connections are made safely at the position where so specified.
- Do not use any fuse that does not meet specified rating.
- Make complete connections for the IC board and other connectors. Insufficient insertion is very dangerous.
- The operating (ambient) temperature range is from 5°C to 40°C.
- When cleaning the CRT surfaces, use a soft, dry cloth. Do not apply chemicals such as thinner, benzine, etc.

Also, for the IC board circuit inspections, only the logic tester is allowed. The use of a tester is not permitted, so be careful in this regard.

After confirming that there are no irregularities, turn the power ON.



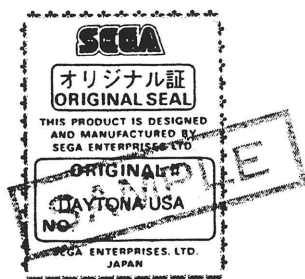
2. PREVENTION OF COUNTERFEITING AND CONVERSION

LABELING

To prevent counterfeits and conversions, the following labels are put on all SEGA products. When handling such goods, be sure to confirm the labels. They are used to prevent illegal acts such as the unauthorized copying of the products and the printed circuit boards thereof or carrying on business by manufacturing similar merchandise or by converting, selling or using such products or printed circuit boards.

ORIGINAL SEAL

The following seal is put on the machines manufactured by SEGA.



LICENSE SEAL

The following seal is put on all SEGA kits, such as the printed circuit board.

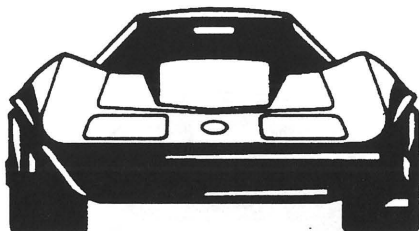


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3. PRECAUTIONS CONCERNING INSTALLATION LOCATION

The DAYTONA USA TWIN TYPE is an indoor game machine. Absolutely do not install it outside. Even indoors, avoid installing in places mentioned below so as to ensure proper usage:

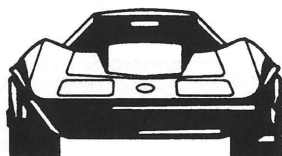
- Places subject to rain or water leakage, or condensation due to humidity.
- In the proximity of an indoor swimming pool and/or shower.
- Places subject to direct sunlight.
- Places subject to heat sources from heating units, etc., or hot air.
- Vicinity of highly inflammable/volatile chemicals or hazardous matter.
- Sloped surfaces.
- Vicinity of anti-disaster facilities such as fire exits and fire extinguishers.
- Places subject to any type of violent impact.
- Dusty places.

INSTALLATION PRECAUTIONS

- 1) Do not insert more than one electrical plug into the power plug socket.
- 2) The per unit standard voltage/amperage is 100~120V/15A.
- 3) Use of extension cables should be avoided. If you must use, ensure the extension cables are rated at 15A or higher for 100~120 volt areas or 10A.
- 4) Note that for transporting the machine into the location's building, the minimum necessary dimensions of the opening (of doors, etc.) are 36 in (W) and 80 in (H).
- 5) For the operation of this machine, secure a minimum area of 80 in (W) x 70 in (D).

ELECTRIC CURRENT CONSUMPTION

MAX. 7.5A (AC 120V 60Hz)



4. NAME OF PARTS

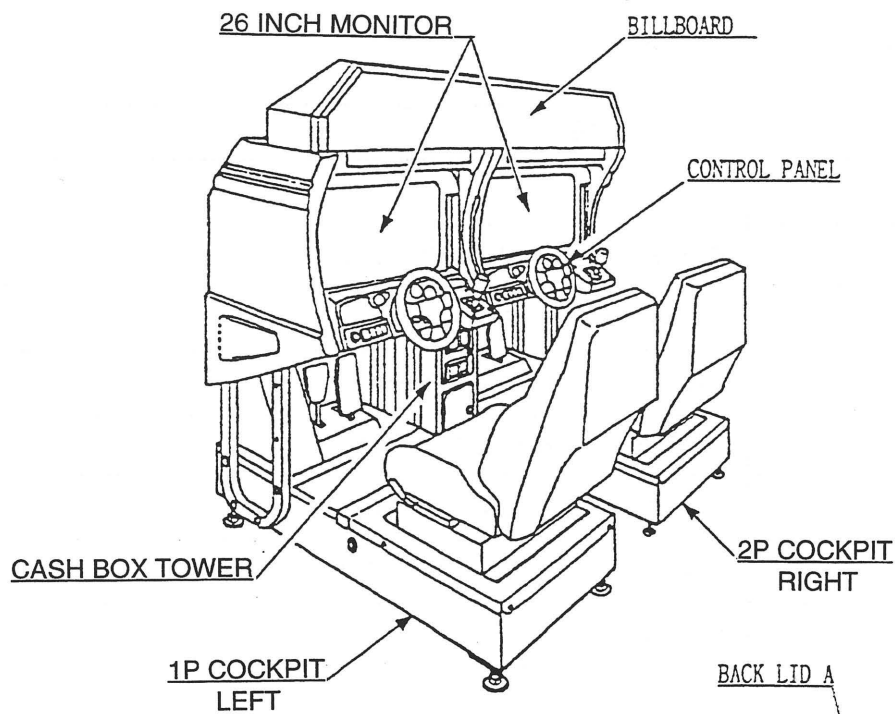


FIG. 4.1 OVERVIEW

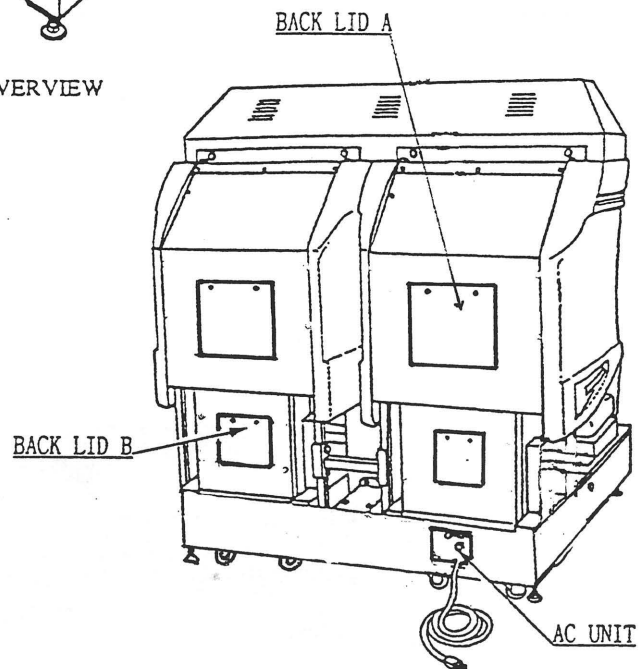


FIG. 4.2 REAR VIEW

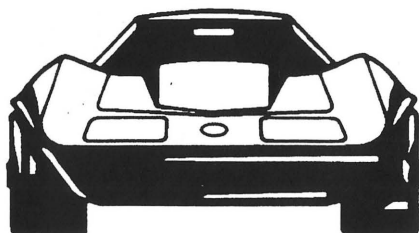


5. ACCESSORIES

When transporting the machine, make sure that the following ports are supplies.

TABLE 5 ACCESSORIES

PART NO.	QTY.	PART NAME
	2	KEY
	1	OWNERS MANUAL DAYTONA TWIN
	1	500CM OPTO CABLE
	1	T15 TAMPER PROOF WRENCH
	1	T20 TAMPER PROOF WRENCH
	1	T25 TAMPER PROOF WRENCH
	1	T27 TAMPER PROOF WRENCH
	1	SEAT LABELS 3-8



6. PRECAUTIONS TO BE HEEDED WHEN ASSEMBLING AND MOVING THE MACHINE

WARNING:

- (1) Perform the assembly work by following the procedure herein stated. Failing to comply with the instructions, for example, inserting the plug into an outlet at the stage not mentioned in this manual might cause an electric shock accident.
- (2) Assembling should be performed as per this manual. Since this is a complex machine, erroneous assembling may cause damage to the machine, or malfunctioning to occur.
- (3) When assembling, be sure to perform the work by plural persons.

When carrying out the assembly work, follow the procedure in the following sequence:

ASSEMBLING THE COCKPIT

INSTALLING THE BILLBOARD

SECURING IN PLACE (LEG ADJUSTER ADJUSTMENT)

INSTALLING THE AC COVERS (WIRING CONNECTION)

POWER SUPPLY, AND EARTH CONNECTION

TURNING THE POWER ON

ASSEMBLING CHECK

Note that the master key and the cashbox door key (accessories) in addition to the tools such as a plus screwdriver, wrench for M16 hexagon bolt and socket wrench are required for the assembly work.

CAUTION:

Perform the tightening of hexagon bolts described above after adjusting the leg adjusters. Make sure that until the leg adjuster adjustments are made, keep the hexagon bolts tightened temporarily.

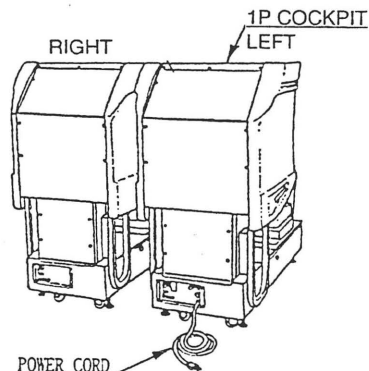
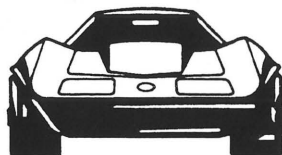


FIG. 6. 1



7. ASSEMBLING MACHINE

① ASSEMBLING YOUR DAYTONA USA TWIN GAME

To assemble your Daytona driving game locate the Left cabinet (side with on/off switch), Cash Box Tower, and Right side cabinet.

In the parts bag located in the cash box locate the Opto cable. This will be needed later, to connect together the opto connections on the rear of Cash Box Tower. The hardware needed to assemble your Daytona driving game has game threaded into the proper holes. This was done to insure the bolts thread properly into the T nuts in the cabinet.

At this time remove the rear cover of the Cash Box Tower.

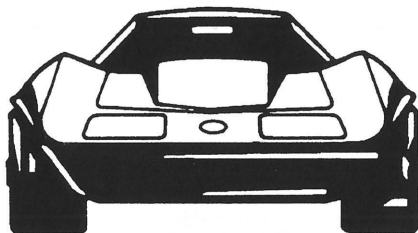
Notice the wire harness taped to the sides of the cabinets and Cash Box Tower. On the wireharness connections Black is for Left side, Yellow is for Right side viewed from front. Locate Left side cabinet (on/off switch) and Cash Box Tower. (Fig 6.1A). Connect the 15, 4, and 2 position connectors together. At this time connect the Opto cable (without white label) to the Opto connection nearest to the Left side of cabinet (viewed from front). These Opto connections are in the rear of the Cash Box Tower.

You may elect not connect the connector at this time, but carefully push the connectors in the hole so they are still accessible form the outside of the cabinet.

There are 4 bolts in NON SLOTTED holes, on the side of the cabinet, the 2 on top under the ledge must be removed. The 2 on the bottom must be loosened about a 1/4 inch. Lift up the Cash Box Tower and using the 2 lower.slotted holes on the bottom of the cash box slip them over the lower protruding bolts and slide the cash box into place. Open the coin door and install the 2 upper bolts through the cash box into the cabinet. Tightened all 4 bolts.

The Right side cabinet gets installed the same way as left side (Fig. 6.1B).

Don't forget to connect all the connectors described above. The opto cables with the white labels get connected together inside the rear Cash Box Tower. The 2 remaining opto cables get connected to the 2 external opto connectors on the rear of the Cash Box Tower. This is used for linking 2 or more games (Fig. 6.1C). Replace the Cash Box Tower rear cover.



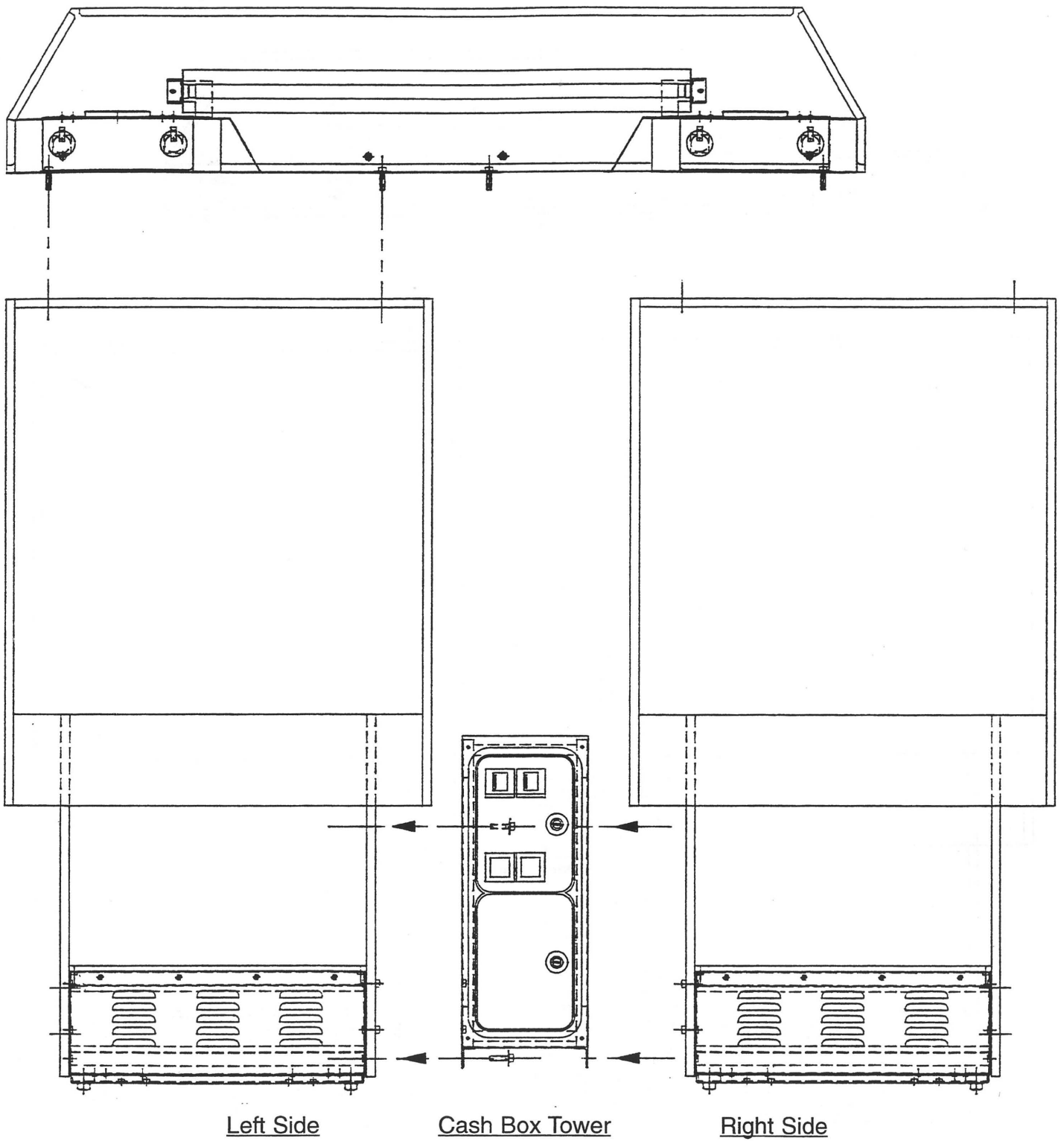


Figure 6.1A

Front View



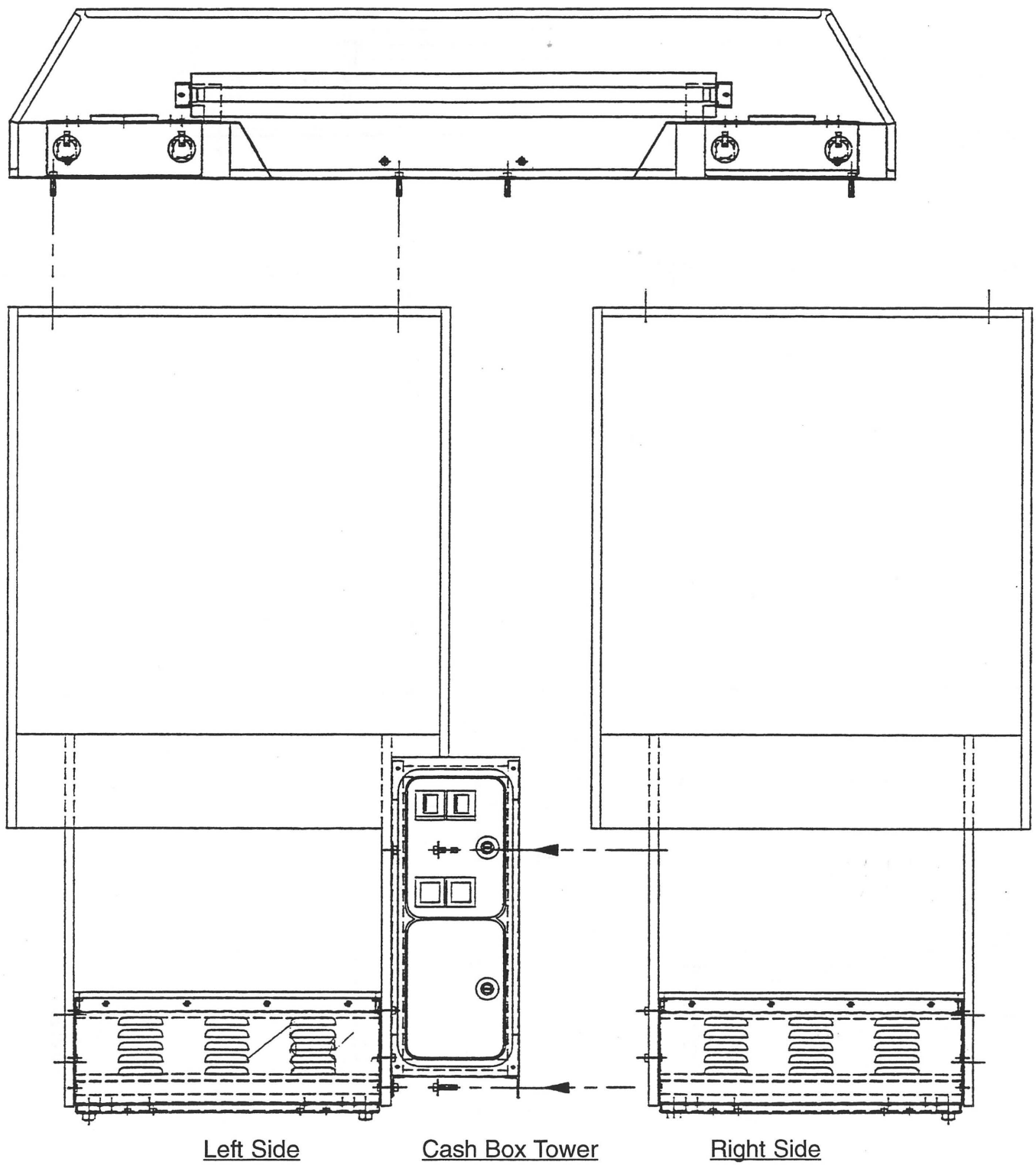


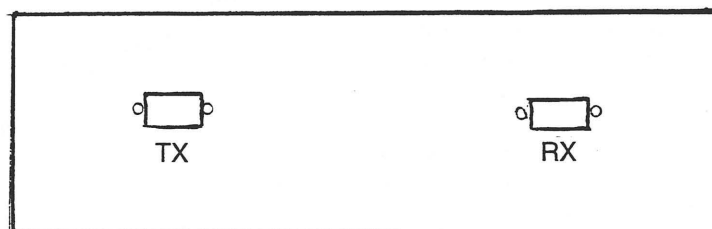
Figure 6.1B

Front View



CAUTION!

The optic fiber cable is used for the communication linkage. Excessive bending may damage the communication cable. Be very careful in this regard.



Rear View of Cash Box Tower

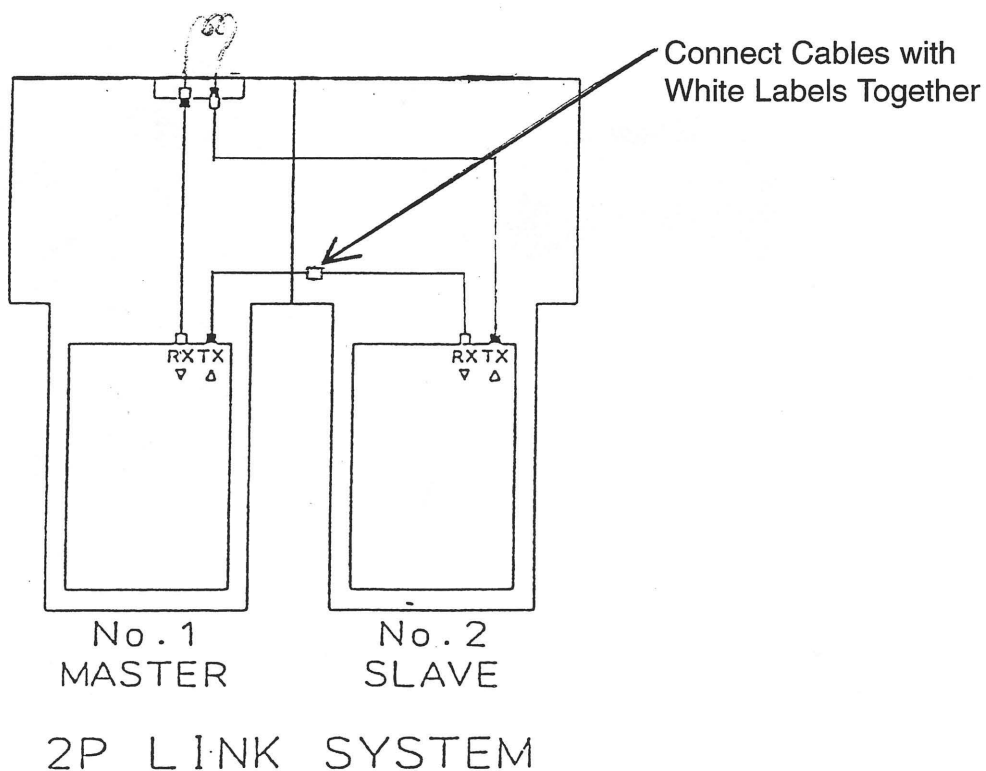


Figure 6.1C

Front View

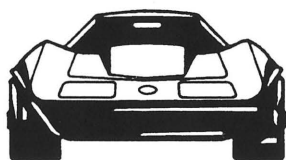
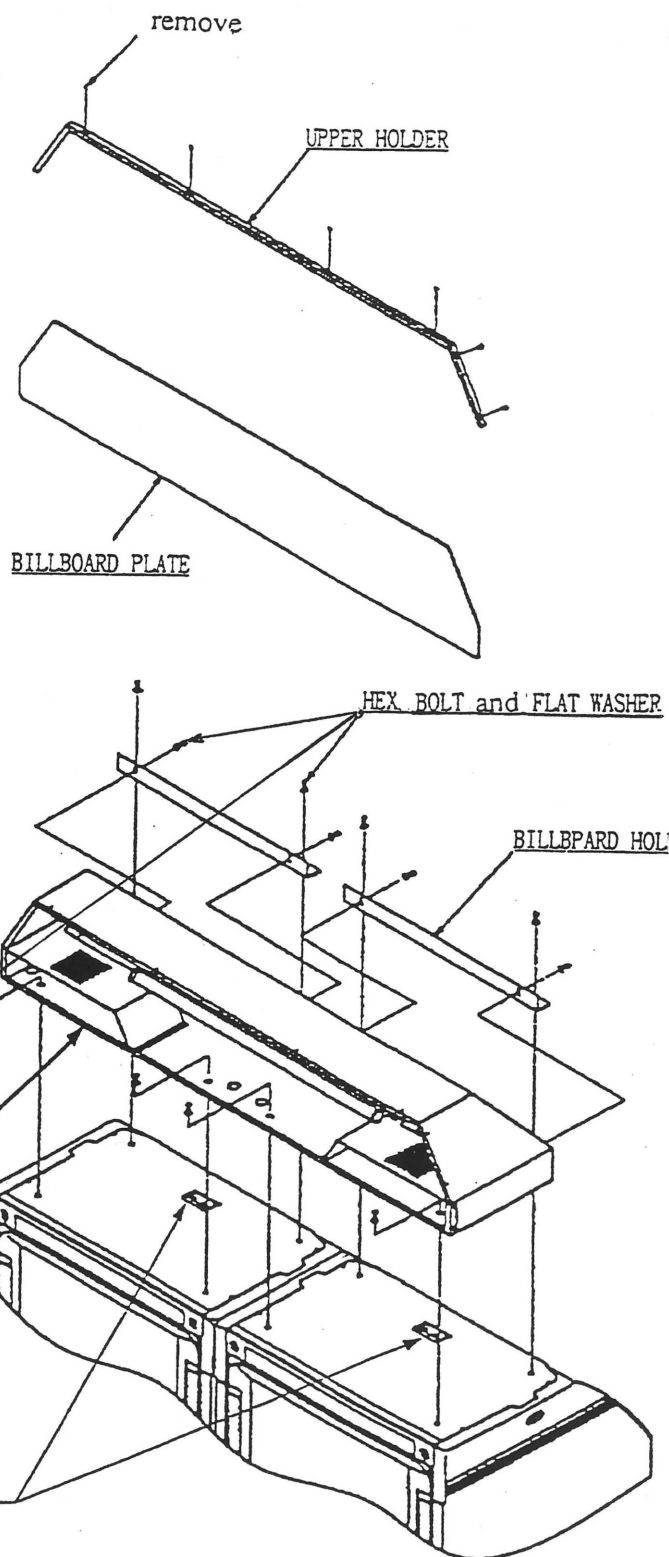


BILLBOARD INSTALLATION

1. Remove billboard from carton and remove upper holder and billboard plate. Remove billboard holders and hardware package from inside billboard case.

Remove (8) 5/16 in hex bolts from top of cabinet.

2. Attach billboard holders to rear of billboard case thru vertical slots with (4) 5/16 - 18 x 1" lg hex bolts and flat washers, lightly tightem.
3. Mount billboard case acroess top of both cabinets and attach with (4) 5/16 - 18 x 1" lg hex bolts and flat washers thru mtg. holes. Do not tighten.
4. Loosen bollboard holders on rear of case and align over mtg. holes. Secure with (4) 5/16 - 18 x 1" lg hex bolts and flat washers.
5. Align billboard case and tighten all mtg. bolts.
6. Connect the (3) billboard connectors. Two (blue & white) connectors on left side, 9 (blue) on right side. There is a extra white connector on Right side that is not used.
7. Replace billboard plate and upper holder.



③ SECURING TO THE INSTALLATION POSITION (LEG ADJUSTER ADJUSTMENT)

WARNING!

Make sure that all of the leg adjusters are in contact with the floor. If they are not, the cabinet may move and cause an accident to occur.

This machine has eight casters and eight leg adjusters (Fig 6.6). When the installation position is determined, cause the leg adjusters to come into contact with the floor directly, make adjustments in a manner so that the casters will be raised approximately 5 mm. from the floor and make sure that the machine position is level.

- 1) Move the machine to the installation position. When installing the machine against or close to a wall, be sure to secure a passage space to enable the player to take a ride in the machine.
- 2) Attach the joint plate for the 2 internal leg adjusters shown. First, cause the other 6 leg adjusters to come into contact with the floor. Make leg adjuster adjustments with a wrench in a manner to ensure the machine's position is level (Fig. 6.6).
- 3) After making adjustments, fasten the leg adjuster nut upward and secure the height of the leg adjuster (Fig. 6.7).
- 4) Insert the notch portions of the joint plate to the 2 leg adjusters.
- 5) Lower the leg adjuster and fasten the nut upward. Secure the joint plate with the nuts and the bottoms of the leg adjuster (Fig. 6.8).

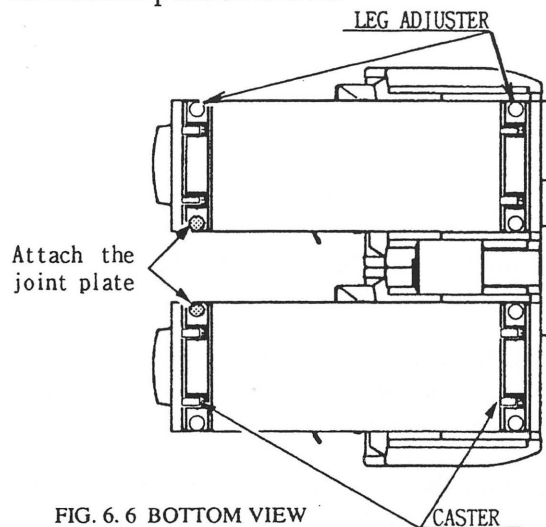


FIG. 6.6 BOTTOM VIEW

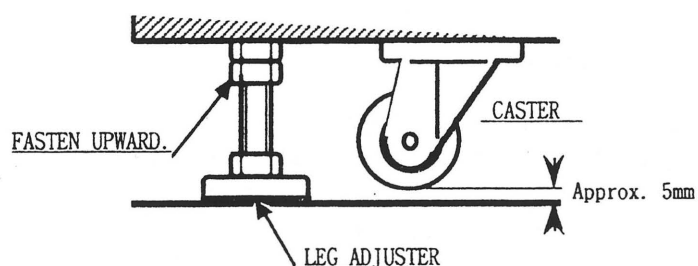


FIG. 6.7 LEG ADJUSTER

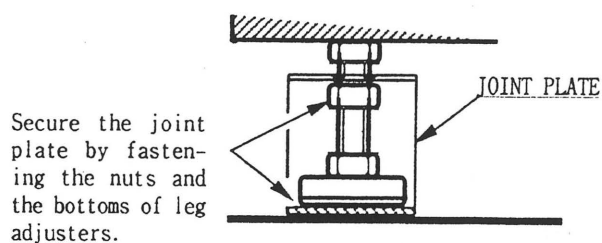
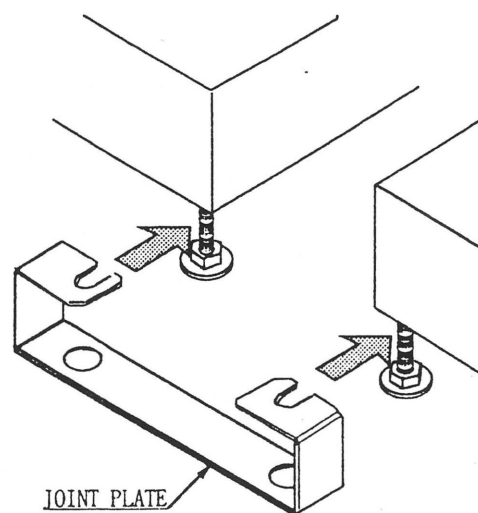
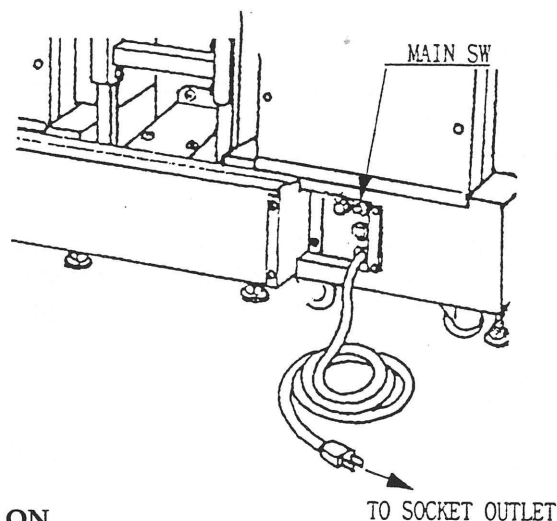


FIG. 6.8 JOINT PLATE



④ POWER SUPPLY AND EARTH CONNECTION

The AC UNIT is located on the back of the 1P cockpit (cabinet).



⑤ TURNING THE POWER ON

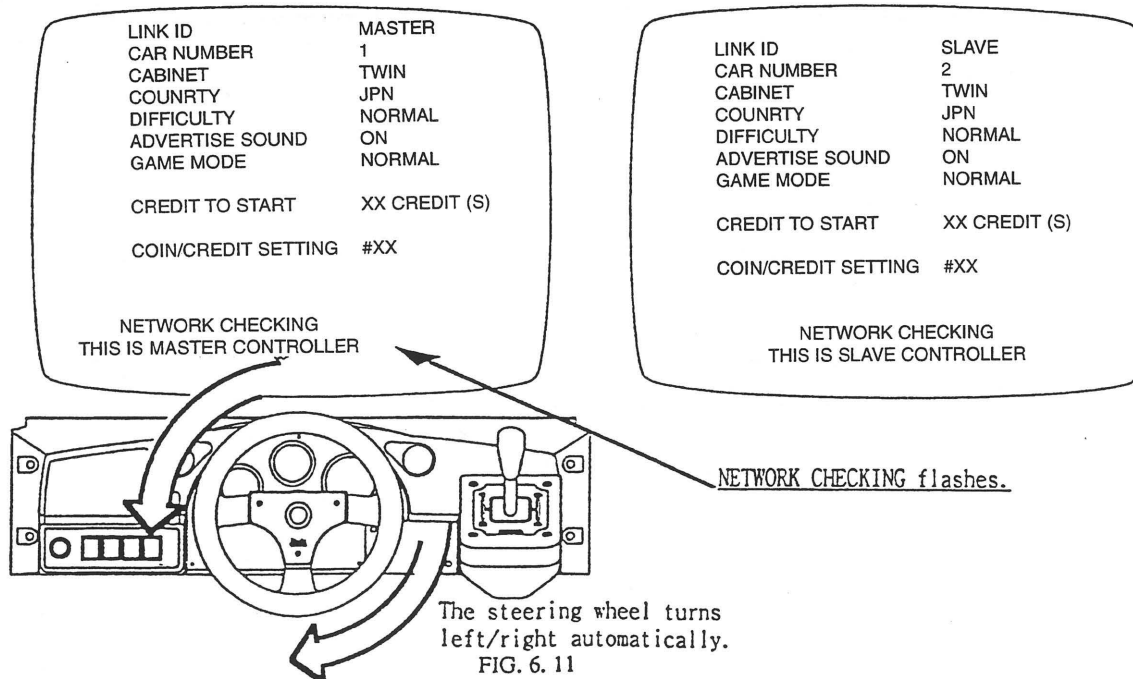
Turning the AC UNIT's MAIN SW on will cause the machine to start the POWER ON check and NETWORK check automatically.

In the POWER ON check, the steering wheel turns left and right, then returns to the centering position and stops. In this check, the values of V.R. inside the control panel are corrected. Until the check is finished (the steering wheel stops automatically), do not touch the steering wheel or play the game.

If you do, the steering wheel reaction during the game (reaction at the time of a course-out or crashing) can not be obtained correctly.

In a case of a strange reaction during the game, turn the power on again from the beginning and complete the power-on check.

During network checking, "NETWORK CHECKING" flashes on the screen. At this time, current settings are displayed on the screen. When NETWORK CHECKING is finished, the DEMO mode will appear on the monitor screen.



⑥ ASSEMBLY CHECK

In the TEST MODE, ascertain that the assembly has been made correctly and IC BD., is satisfactory (refer to Section 8).

In the test mode, perform the following test:

(1) MEMORY TEST

MEMORY TEST		
IC 6 0000	IC 7 0000	IC 8 0000
IC 9 0000	IC 10 0000	IC 11 0000
IC 12 0000	IC 13 0000	
IC 45 0000	IC 46 0000	IC 47 0000
IC 48 0000	IC 49 0000	IC 50 0000
IC 54 0000	IC 55 0000	
START TO EXIT		

Selecting the MEMORY TEST on the test mode menu screen causes the on-board memory to be tested automatically. The game board is satisfactory if the display beside each IC No. shows GOOD.

(2) INPUT TEST

INPUT TEST			
CHUTE 1	OFF	CHUTE 2	OFF
SHIFT 1	OFF	SHIFT 2	OFF
SHIFT 2	OFF	SHIFT 4	OFF
VR1	OFF	VR2	OFF
VR3	OFF	VR4	OFF
START	OFF		
TEST-SW	OFF	SERVICE-SW	OFF
HANDLE	XXXH		
ACCEL	XXXH		
BRAKE	XXXH		
RED & BLUE : TO EXIT			

Selecting the INPUT TEST on the test mode menu screen causes the screen (on which each switch and V.R. are tested) to be displayed. Press each switch. For the coin chute switch test, insert a coin from the coin inlet with the coin chute door being open. If the display beside each switch indicates "ON", the switch and wiring connections are satisfactory.

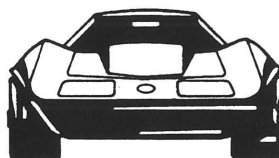
(2) OUTPUT TEST

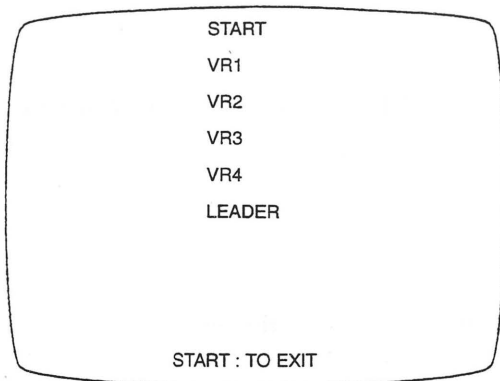
OUTPUT TEST	
[Grid of 100 small squares for testing]	
START TO EXIT	

Ascertain the display of V.R. value for the steering wheel and accelerator & brake. If the V.R. values are not satisfactory, refer to Sections 9 & 10.

OUTPUT TEST	
red	
green	
blue	
white	
START : TO EXIT	

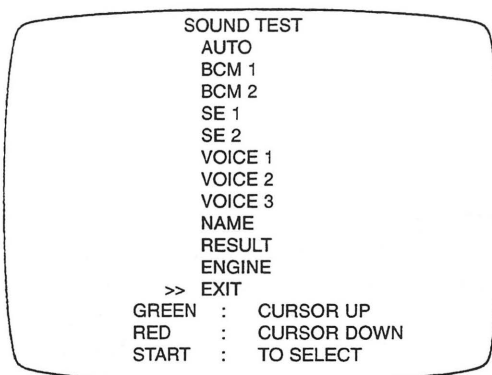
In the TEST mode menu, selecting OUTPUT TEST allows the screen (on which the monitor is tested) to be displayed. Although the monitor adjustments have been made at the time of shipment from the factory, make judgment (by watching the test mode screen) as to whether an adjustment is needed. If it is necessary, adjust the monitor by referring to Section 13.





In the LAMP TEST mode, carry out the lamp test to ascertain that each lamp lights up satisfactorily.

(4) SOUND TEST



In the TEST mode, selecting SOUND TEST causes the screen (on which sound related BD and wiring connections are tested) to be displayed.

Be sure to check if the sound is satisfactorily emitted from each speaker and the sound volume is appropriate.

Perform the above inspections also at the time of monthly inspection.

MACHINE MOVEMENT

Since this machine is a heavy structure of approximately 1200 lbs., its leg adjusters should be retracted when moving the machine over the floor.

Where the floor changes in level, be sure to separate the 1P COCKPIT and 2P COCKPIT from each other. Lifting the cabinet with 1P and 2P cockpits being still connected may cause damage to the cabinet.



7-1 HOW TO PLAY

The following explanations apply to the case that each seat has an independent coin entry. In the case where a coin entry is used in common by 2 seats, the starting procedure is different.

- 1) Take a ride in the machine. The seat position can be adjusted forward and backward. For adjustments, pull the lever which is positioned on the lower left-hand side (facing the monitor screen) of the seat.
 - 2) The coin chute door is located at the center in the front of the cabinet. Insert a coin into the corresponding coin entry and press the start button.
- 3 courses appear on the screen in the sequence of Beginner, Advanced and Expert starting from the left.
- 3) At this time, "WAITING FOR YOUR ENTRY" is displayed on the other players' monitors and a countdown of 14 seconds to start will begin. The person who desires to compete with the first player is to insert a coin into the coin entry for his seat within the 14 seconds.
 - 4) By turning the steering wheel, chose a course and make the selection effective by stepping on the Accelerator. The course selection is determined by the majority of the players participating i the "vs." competition race and not by the person who inserted a coin first.
 - 5) SHIFT CHANGE SELECTION screen appears. Choose AUTO or MANUAL by turning the steering wheel and effectuate the selection by stepping on the Accelerator. This selection is made by each seat independently. While pressing the start button, if you step on the Accelerator, only the "vs." competitor's car appears and other competitor cars will not appear. This is also determined by the majority of the players participating in the "vs." competition.
 - 6) When AUTO or MANUAL is determined, the game starts. Choosing the Beginner course results in a rolling start, the same as in the Daytona race. When the Advanced or Expert course is chosen, be sure to step on the Accelerator to start the machine.
 - 7) The on-screen upper right-hand side, below the upper right, the upper middle, below the upper middle, the upper left-hand side and the lower right respectively indicates the player's present position, where other cars are, time limit, speed & tachometer, lap time and course map.

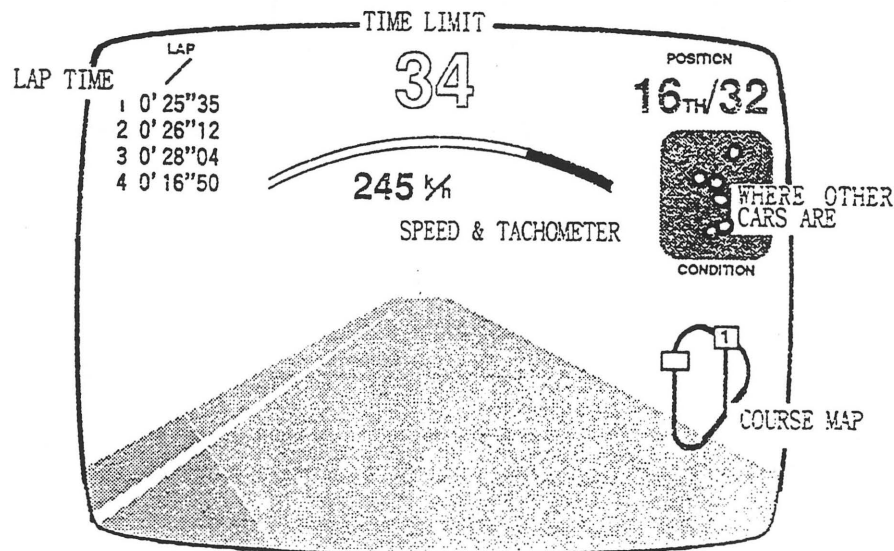


FIG. 7.1



- 8) After the game is started, the allotted time decreases. Passing a check point allows the game to continue with the previous remaining time added to the time limit up to the next check point. If you fail to pass a checkpoint within the time limit, the game will be over.
- 9) In case of a course-out or crash, the steering wheel reacts.
- 10) When you finish 8 laps, 4 laps and 2 laps, which respectively corresponds to the BEGINNER, ADVANCED and EXPERT course, the game will be over. The lap setting can be changed for specific attraction event purposes.
- 11) The player whose results are excellent is allowed to register his name. Turn the steering wheel to choose the alphabetical letters and step on the accelerator to effectuate the selection. The name will be displayed on the DEMO screen.
- 12) In the case you do not play "vs." competition, when choosing AUTO or MANUAL, stepping on the Accelerator while pressing the start button will result in a TIME ATTACK mode in which no competitor car will appear and only the player's car will run.

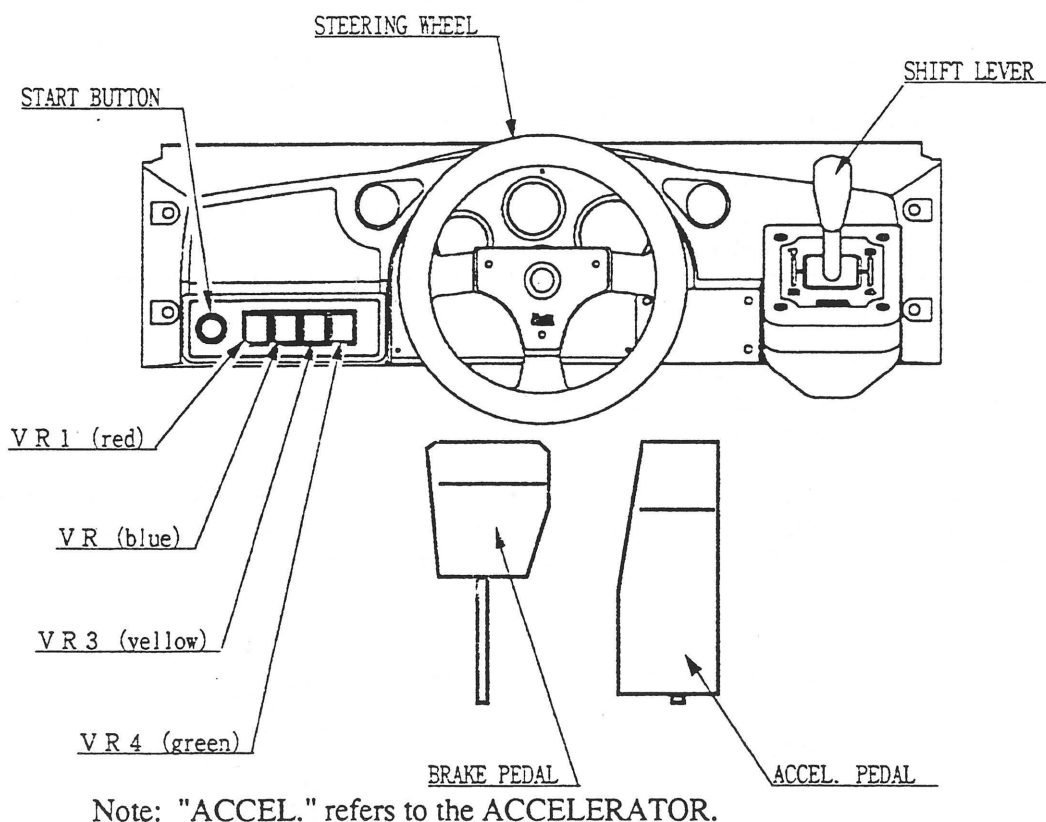


FIG. 7. 2

PLAYING TECHNIQUE

It is recommended that you choose AUTOMATIC if you are not so familiar with the game. Also, note that choosing V.R. SW No. 2 (blue) or No. 3 (yellow) allows for better perspectives. At the corners, be sure to drive slower. Refrain from abruptly turning the steering wheel to avoid an accident. In this game, skillful braking is important. Also, note that it is important to grasp the features of the courses as soon as you can. Find out the best way to pass the corners.

When MANUAL SHIFT is chosen, refer to the engine r.p.m. for shifting. SHIFTING UP immediately before the indicator indicates the red zone allows the acceleration to be made in the most efficient manner.



8. EXPLANATION OF TEST AND DATA DISPLAY

By operating the switch unit, periodically perform the tests and data check. When installing the machine initially or collecting cash, or when the machine does not function correctly, perform checking in accordance with the explanations given in this section. The following shows tests and modes that should be utilized as applicable.

CAUTIONS TO BE HEEDED WHEN USING THE TEST MODE:

Exiting from the test mode causes the unit to perform the network check automatically. During this time, all of the linked units will not allow the game to be played in normal status. Therefore, be sure not to enter the test mode if any one of the units is in play. On the other hand, if even one unit is in the mode, make sure that other machines are not in play.

TABLE 8.1 EXPLANATION OF TEST MODE

ITEMS	DESCRIPTION	REFERENCE SECTIONS
INSTALLATION OF MACHINE	When the machine is installed, perform the following: 1. Check to see that each setting is as per standard setting made at the time of shipment. 2. In the INPUT TEST mode, check each SW and VR. 3. In the OUTPUT TEST mode, check each of lamps. 4. In the SELF-TEST mode, check ICs on the IC Board.	8 - 4, 8 - 5 8 - 6, 8 - 8 8 - 7 8 - 10, 8 - 11
MEMORY	Choose MEMORY TEST in the MENU mode to allow the memory test to be performed. In this test, PROGRAM RAMs, ROMs, and ICs on the IC Board are checked.	8 - 10, 8 - 11
PERIODIC SERVICING	Periodically perform the following: 1. MEMORY TEST 2. Ascertain each setting. 3. In the INPUT TEST mode, test the CONTROL device. 4. In the OUTPUT TEST mode, check each of lamps.	8 - 10, 8 - 11 8 - 4, 8 - 5 8 - 6, 8 - 8 8 - 7
CONTROL SYSTEM	1. In the INPUT TEST mode, check each SW and VR. 2. Adjust or replace each SW and VR. 3. If the problem can not be solved yet, check the CONTROL's moves.	8 - 6, 8 - 8 9, 10, 11
MONITOR	In the MONITOR ADJUSTMENT mode, check to see if the MONITOR adjustment is appropriately made.	8 - 7 13
IC BOARD	1. MEMORY TEST 2. In the SOUND TEST mode, check the sound related ROMs.	8 - 10, 8 - 11 8 - 9
DATA CHECK	Check such data as game play time and histogram to adjust the difficulty level, etc.	8 - 3



8-1 SWITCH UNIT

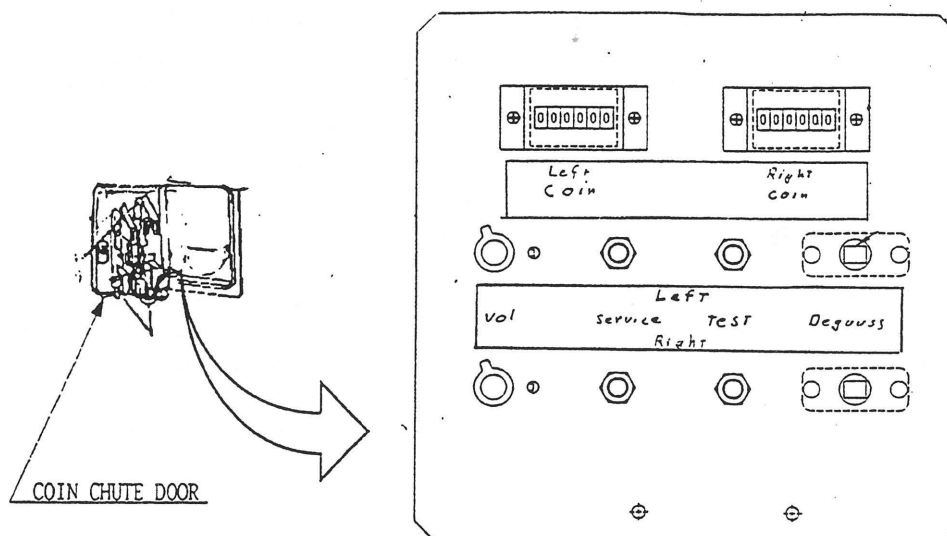
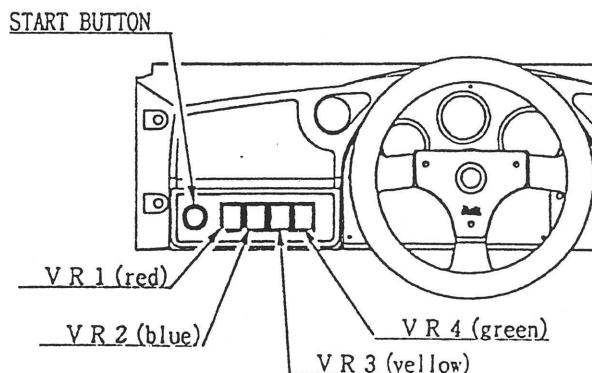


FIG. 8.1 SWITCH UNIT

Open the coin chute door, and the switch unit shown will appear. The functioning of each SW is as follows:

- TEST SWITCH: For the handling of the test button, refer to the following pages.
- SERVICE SWITCH: Gives credits without registering on the coin meter.
- SOUND VOLUME: Adjusts the volume of the monitor's right-hand side and left-hand side speakers, the control panel's right/left tweeters and the superwoofer under the seat.
- DEMAGNETIZER SWITCH: Eliminates color unevenness from the screen.

The control panel switches are also used in the test mode. For each functioning, refer to the following page and onward.



8-2 TEST MODE

- The Test Menu allows the functioning of each part of the Cabinet to be checked, the MONITOR to be adjusted, and the coins and game related various settings to be performed.
- Press the TEST SWITCH to cause the following Test Menu to be displayed on the monitor. (FIG. 8.2)
- Press the SERVICE SWITCH until the pointer ">>" is moved to the desired item. Also, note that pressing VR1 (red) causes the arrow to move downward and pressing VR4 (green) causes the arrow to move upward.
- Bring the pointer ">>" to the desired test item and press either the TEST SWITCH or START BUTTON to cause the selected item's test to start.

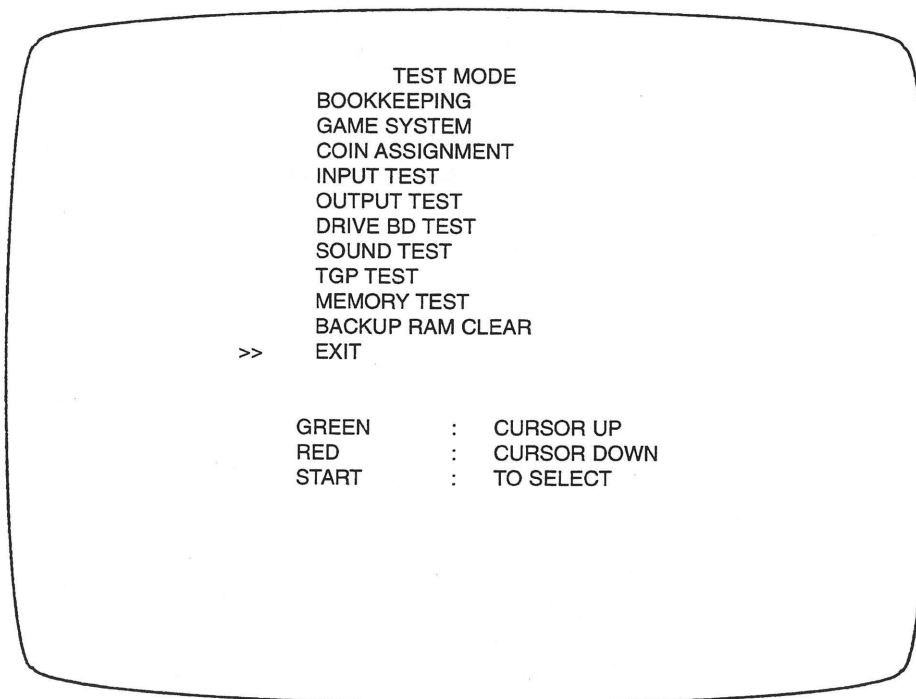
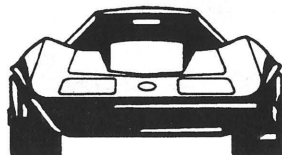


FIG. 8.2 TEST MENU

After the test is complete, move ">>" to "EXIT" and press the TEST SWITCH or START BUTTON to return to the Game Mode.



8-3 BOOKKEEPING

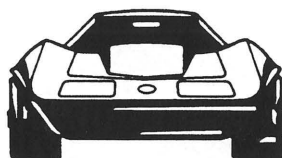
Selecting the BOOKKEEPING in the menu mode causes the bookkeeping data up to the present to be displayed on 2 pages.

- Press the TEST SW or START BUTTON to return to the MENU mode screen.
- Press VR1 (red) to proceed to the other page.

BOOKKEEPING	
COIN CHUTE #1	XXXXXXXX
COIN CHUTE #2	XXXXXXXX
TOTAL COINS	XXXXXXXX
COIN CREDITS	XXXXXXXX
SERVICE CREDITS	XXXXXXXX
TOTAL CREDITS	XXXXXXXX
NUMBER OF GAMES	XXXXXXXX
TOTAL TIME	xDxxHxxWxxS
GAMES PLAY TIME	xDxxHxxWxxS
AVERAGE GAME TIME	xxWxxS
LONGEST GAME TIME	xxWxxS
SHORTEST GAME TIME	xxWxxS
START	: TO EXIT
RED	: TO OTHER PAGE

FIG. 8. 3a BOOKKEEPING

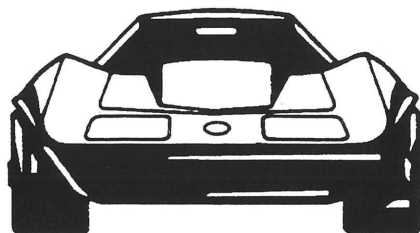
- COIN CHUTE #*: Number of coins put in. As seen from the front of the cabinet, the right-hand side is #1 and the left-hand side is #2.
- TOTAL COINS: Total number of activations of coin chutes.
- COIN CREDITS: Number of credits registered by inserting coins.
- SERVICE CREDITS: Credits registered by the SERVICE switch.
- TOTAL CREDITS: Total number of credits (COIN CREDITS + SERVICE CREDITS)
- TOTAL TIME: The total energized time.



BOOKKEEPING	
TOTAL PLAY GAMES	xxxxxxxGAMES
BEGINNER COURSE GOALS	xxxxxxxGAMES xxxxxxx
AVERAGE PLAY TIME	xxWxxS
FASTEST GOAL TIME	xxWxxS
ADVANCED COURSE GOALS	xxxxxxxGAMES xxxxxxx
AVERAGE PLAY TIME	xxWxxS
FASTEST GOAL TIME	xxWxxS
EXPERT COURSE GOALS	xxxxxxxGAMES xxxxxxx
AVERAGE PLAY TIME	xxWxxS
FASTEST GOAL TIME	xxWxxS
START	: TO EXIT
RED	: TO OTHER PAGE

FIG. 8. 3b BOOKKEEPING

- BEGINNER COURSE: Beginner course's game play frequency.
- ADVANCED COURSE: Advanced course's game play frequency.
- EXPERT COURSE: Expert course's game play frequency.
- GOALS: Total number of GOALs of each course.
- Press the TEST SW or START BUTTON to return to the MENU mode screen.
- Press VR1 (red) to proceed to the other page.



8-4 GAME SYSTEM

Selecting the GAME SYSTEM in the menu mode causes the present game setting to be displayed and also the game setting changes can be made. Each item displays the following content.

GAME SYSTEM	
LINK ID	MASTER
CAR NUMBER	1
CABINET	TWIN
COUNRTY	EXPORT
DIFFICULTY	NORMAL
ADVERTISE SOUND	ON
GAME MODE	NORMAL
RIVAL ARROW	OFF
>> EXIT	
GREEN	: CURSOR UP
RED	: CURSOR DOWN
YELLOW	: MODE UP
BLUE	: MODE DOWN
START	: TO SELECT

FIG. 8.4 GAME SYSTEM

- **LINK ID:** For communication (interactive) play, set one seat to "MASTER" and the rest of the seats to "SLAVE". The game setting and coin setting, etc. of the MASTER seat apply to the slave seats also. Note that setting changes made by the SLAVE seats are not effective for the game.
- **CAR NUMBER:** For interactive play between 2 or more machines (cabinets), the cabinets (starting from the left, facing the monitor screen) are numbered in the sequential order of No. 1, No. 2, No. 3, No. 4, If the same number is used for 2 or more cabinets or cabinets are numbered in an incorrect sequence, on-screen display may be confused.
- **CABINET:** Setting of cabinet. Set to "TWIN" for this machine.
- **COUNTRY:** Message language (select USA for the U.S.A. , and EXPORT for other countries).
- **DIFFICULTY:** The game difficulty is classified into 4 different categories from EASY to HARDEST. Standard setting is "NORMAL".
- **ADVERTISE SOUND:** Advertisement sound during standby.
No sound is produced with "OFF". Standard setting is "OFF".
- **GAME MODE:** Selection of laps. Allows laps to be changed for specific attraction event purposes. NORMAL (8,4 and 2 laps respectively for Beginner, Advanced and Expert.) GRAND PRIX (20, 10 and 5 laps respectively for Beginner, Advanced and Expert). ENDURANCE (80, 40 and 20 laps respectively for Beginner, Advanced and Expert).
- **RIVAL ARROW:** Selection of ARROW(s) indicating rival car(s). ON to display. OFF not to display.

SETTING CHANGE PROCEDURE

- ① Press the SERVICE SW or VR1 (red), or VR 4 (green) to move the arrow (>>) to the desired item.
- ② Choose the desired setting change item by using any one of VR2 (blue), VR3 (yellow), TEST SW and START BUTTON.
- ③ To return back to the MENU mode, move the arrow to EXIT and press the TEST SW or START BUTTON.



8-5 COIN ASSIGNMENT

The "COIN ASSIGNMENTS" mode permits you to set the start number of credits, as well as the basic numbers of coins and credits. This mode expresses "how many coins correspond to how many credits".

COIN ASSIGNMENT	
CREDIT TO START	1 CREDIT (S)
COIN/CREDIT SETTING #1	
CHUTE 1	1 COIN 1 CREDIT
CHUTE 2	1 COIN 1 CREDIT
>> EXIT	
GREEN	: CURSOR UP
RED	: CURSOR DOWN
YELLOW	: MODE UP
BLUE	: MODE DOWN
START	: TO SELECT

FIG. 8.5 COIN ASSIGNMENTS

- CREDIT TO START: Number of credits required for starting game (1~5 credits are selected.)
- COIN/CREDIT SETTING: "How many coins correspond to how many credits."
In this machine, selection as per Table 8.2 is possible.

SETTING CHANGE PROCEDURE

- ① Press the SERVICE SW or VR1 (red), or VR 4 (green) to move the arrow (>>) to the desired item.
- ② Choose the desired setting change item by using any one of VR2 (blue), VR3 (yellow), TEST SW and START BUTTON.
- ③ To return back to the MENU mode, move the arrow to EXIT and press the TEST SW or START BUTTON.



TABLE 8.2 COIN/CREDIT SETTING (COIN CHUTE COMMON TYPE)

NAME OF SETTING	FUNCTIONING OF COIN CHUTE #1		FUNCTIONING OF COIN CHUTE #2	
SETTING #1	1 COIN	1 CREDIT	1 COIN	1 CREDIT
SETTING #2	1 COIN	1 CREDIT	1 COIN	2 CREDITS
SETTING #3	1 COIN	1 CREDIT	1 COIN	3 CREDITS
SETTING #4	1 COIN	1 CREDIT	1 COIN	4 CREDITS
SETTING #5	1 COIN	1 CREDIT	1 COIN	5 CREDITS
SETTING #6	1 COIN	2 CREDITS	1 COIN	2 CREDITS
SETTING #7	1 COIN	2 CREDITS	1 COIN	5 CREDITS
SETTING #8	1 COIN	3 CREDITS	1 COIN	3 CREDITS
SETTING #9	1 COIN	4 CREDITS	1 COIN	4 CREDITS
SETTING #10	1 COIN	5 CREDITS	1 COIN	5 CREDITS
SETTING #11	1 COIN	6 CREDITS	1 COIN	6 CREDITS
SETTING #12	2 COINS	1 CREDIT	2 COINS	1 CREDIT
SETTING #13	2 COINS	1 CREDIT	1 COIN	1 CREDIT
SETTING #14	2 COINS	1 CREDIT	1 COIN	2 CREDITS
SETTING #15	1 COIN	1 CREDIT	1 COIN	1 CREDIT
	2 COINS	3 CREDITS		
SETTING #16	1 COIN	1 CREDIT	1 COIN	3 CREDITS
	2 COINS	3 CREDITS		
SETTING #17	3 COINS	1 CREDIT	3 COINS	1 CREDIT
SETTING #18	4 COINS	1 CREDIT	4 COINS	1 CREDIT
SETTING #19	1 COIN	1 CREDIT	1 COIN	1 CREDIT
	2 COINS	2 CREDITS	2 COINS	2 CREDITS
	3 COINS	3 CREDITS	3 COINS	3 CREDITS
	4 COINS	5 CREDITS	4 COINS	5 CREDITS
SETTING #20	1 COIN	1 CREDIT	1 COIN	5 CREDITS
	2 COINS	2 CREDITS		
	3 COINS	3 CREDITS		
	4 COINS	5 CREDITS		
SETTING #21	5 COINS	1 CREDIT	5 COINS	1 CREDIT
SETTING #22	3 COINS	1 CREDIT	5 COINS	1 CREDIT
	5 COINS	2 CREDITS		
SETTING #23	2 COINS	1 CREDIT	2 COINS	1 CREDIT
	4 COINS	2 CREDITS	4 COINS	2 CREDITS
	5 COINS	3 CREDITS	5 COINS	3 CREDITS
SETTING #24	2 COINS	1 CREDIT	1 COIN	3 CREDITS
	4 COINS	2 CREDITS		
	5 COINS	3 CREDITS		
SETTING #25	1 COIN	1 CREDIT	1 COIN	1 CREDIT
	2 COINS	2 CREDITS	2 COINS	2 CREDITS
	3 COINS	3 CREDITS	3 COINS	3 CREDITS
	4 COINS	4 CREDITS	4 COINS	4 CREDITS
	5 COINS	6 CREDITS	5 COINS	6 CREDITS
SETTING #26	1 COIN	1 CREDIT	1 COIN	6 CREDITS
	2 COINS	2 CREDITS		
	3 COINS	3 CREDITS		
	4 COINS	4 CREDITS		
	5 COINS	6 CREDITS		
SETTING # 27	FREE PLAY		FREE PLAY	



8-6 INPUT TEST

When INPUT TEST is selected, the monitor will show the following, allowing you to watch the status of each switch and the value of each V.R. of the CONTROL PANEL.

On this screen, periodically check the status of each switch & V.R.

- By pressing each switch, if the display on the right-hand side of the name of each switch changes to ON from OFF, the SW and the wiring connections are satisfactory.
- To check CHUTE 1 & CHUTE 2 coin switches, open the COIN CHUTE DOOR and insert a coin(s) from the coin entry.
- To return back to the MENU mode, simultaneously press VR1 & VR2, or press the TEST SW.

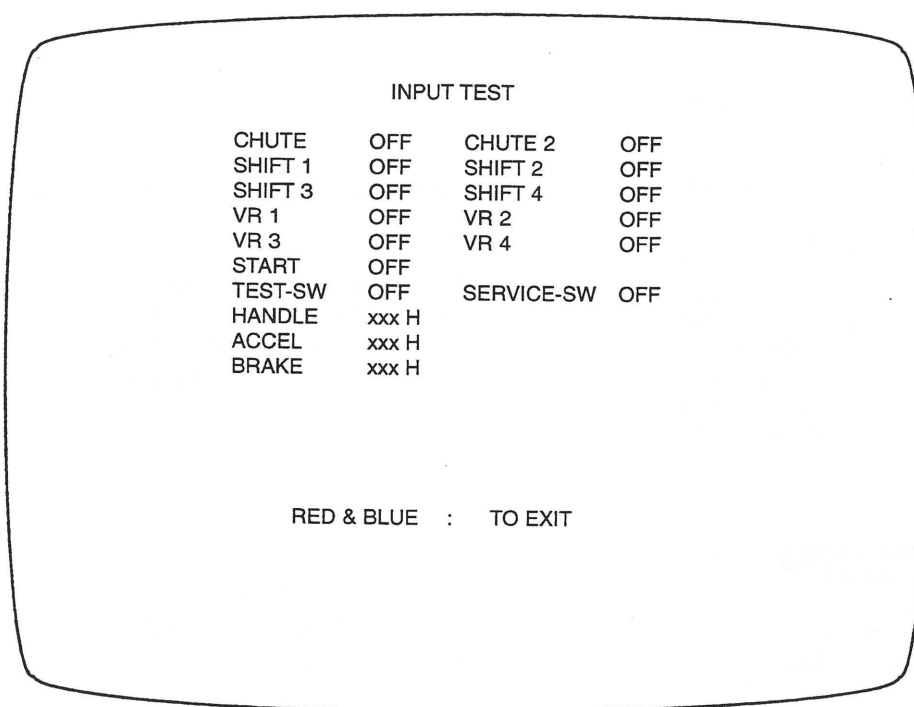


FIG. 8.6 INPUT TEST

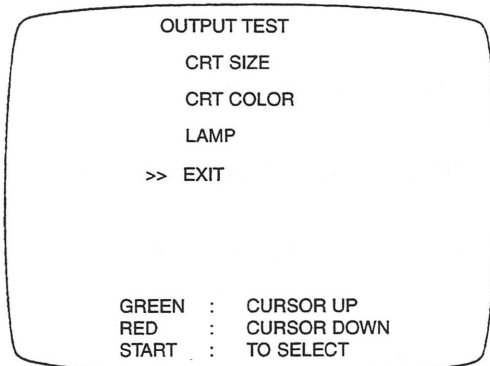
An appropriate value of each V.R. is as follows:

HANDLE:	Under 2DH left	← 7D~83H → (Centering position)	Over D3H right
ACCEL:	Under 30H	→	Over COH
BRAKE:	Under 30H (the pedal released)	→	Over D2H (the pedal stepped)



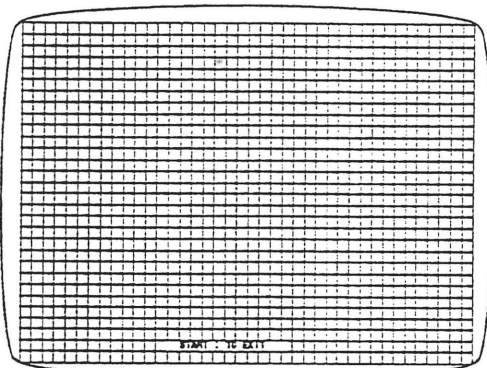
8-7 OUTPUT TEST

Choose OUTPUT TEST to cause the following topmost screen to appear. In this test, periodically adjust the monitor and check the status of each lamp.



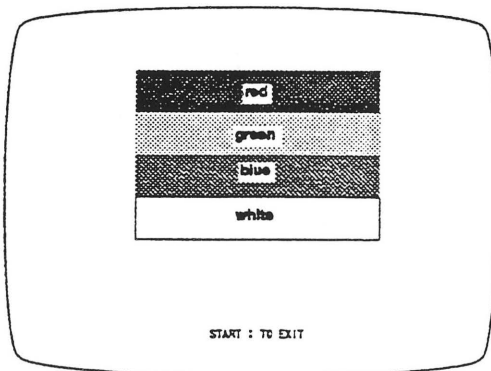
The FIG. at the left shows the menu mode of OUTPUT TEST. Press the SERVICE SW or VR4 (green) /VR1 (red) and bring the arrow (>>) to the desired test item.

Press the TEST SW or START BUTTON to cause the test mode screen below to appear. To return back to the menu mode, bring the arrow to EXIT and press the TEST SW or START BUTTON (FIG. 8.2)

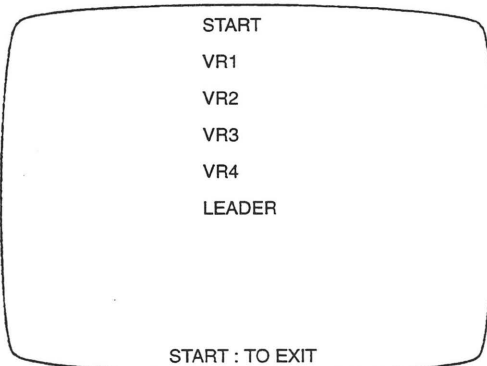


Choose CRT SIZE to cause the screen shown at the left to appear.

Adjust the monitor to make sure that the crosshatch lines do not go beyond the screen size and crosshatch distortion does not occur. Press the START BUTTON to return to the above OUTPUT TEST menu screen.



Choose CRT COLOR to cause the screen shown at the left to appear. This test allows the on-screen color adjustment to be performed. The color of a color bar (for each of the 4 colors, i.e., red, gree, blue, and white) is darkest at the left most end and brightest at the rightmost end. Press the START BUTTON to return to the above OUTPUT TEST menu screen.



Choose LAMP to cause the screen shown at the left to appear. This enables the status of each lamp to be checked. Causes the START button lamp, the lamp of each V.R. switch, and LEADER lamp to light up in a sequential order. Press the START button to return to the above OUTPUT TEST menu screen.

FIG. 8.7 OUTPUT TEST



8-8 DRIVE BD TEST

Choosing DRIVE BD TEST allows the reaction mechanism of the steering wheel to be checked. Also, this enables the V.R. value for the steering wheel's DRIVE BD and the setting status of the DIP SWes on the Drive BD to be checked.

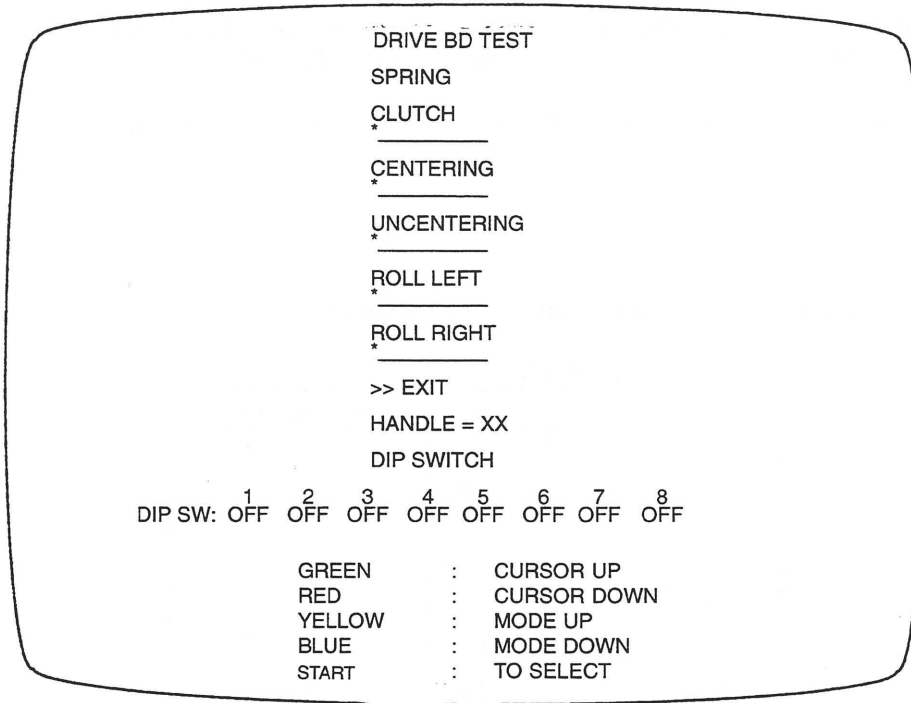


FIG. 8.8 DRIVE BD TEST

Bring the arrow (>>) to the desired item by using the SERVICE SW or VR1 (red) or VR4 (green). The steering wheel functions to the setting selected by the arrow. Pressing VR2 (blue) or VR3 (yellow) allows the force transmitted to the steering wheel to increase or decrease.

- **SPRING:** Status in which the motor and clutch are not activated. Centering of the handle is caused by only the spring inside the handle mechanism.
- **CLUTCH:** Status in which the clutch is activated. The handle is fixed.
- **CENTERING:** Status in which the handle (of itself) returns to the center position.
- **UNCENTERING:** Status in which the handle is caused not to be in the center.
- **ROLL LEFT:** Status in which the handle is rotated in the left-hand side direction.
- **ROLL RIGHT:** Status in which the handle is rotated in the right-hand side direction.
- **EXIT:** Causes the menu mode to return on to the screen.




- APPROPRIATE V.R. VALUE:
- | | | |
|------------|-----------------------------------|----------|
| Under 2 DH | \leftarrow 7D~83H \rightarrow | Over D3H |
| Left | Centering | Right |

The setting of DIP SW Nos. 1~4 on the DRIVE BD allows the handle's weight (via "feeling") to be set and ON or OFF of POWER ON CHECK to be selected. DIP SW Nos. 5 to 8 are to be OFF.

DIP SW SETTING

HANDLE'S WEIGHT

1	2	3	FUNCTION
			Light
ON	OFF	OFF	
OFF	ON	OFF	
ON	ON	OFF	
OFF	OFF	ON	
ON	OFF	ON	
ON	ON	ON	
			Heavy

4	FUNCTION
	Performed
ON	Not Performed

The handle's reaction mechanism is subject to a secular change. When the reaction becomes lighter, change the DIP SW setting.

When malfunctioning occurs in the DRIVE BD, testing will not be performed even if DRIVE BD TEST is selected. In this case, the error No. will be displayed by the 7-SEG display on the DRIVE BD.



8-9 SOUND TEST

Choosing SOUND TEST causes the following mode to appear on the screen. This allows the desired sound (BGM, announcement and sound effects) to be chosen and heard. Enables the SOUND BD, AMP BD and each speaker to be checked.

Press the SERVICE SW or VR1 (red) or VR4 (green) and bring the arrow (>>) to the desired sound item to be tested. Pressing the TEST SW or START BUTTON allows the selected sound test to be performed.

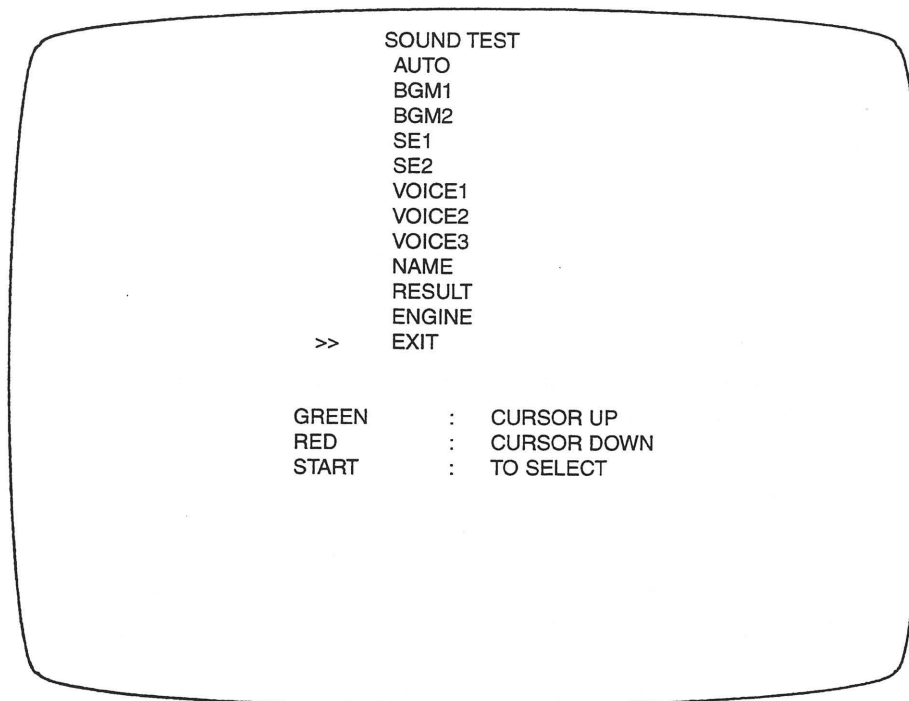
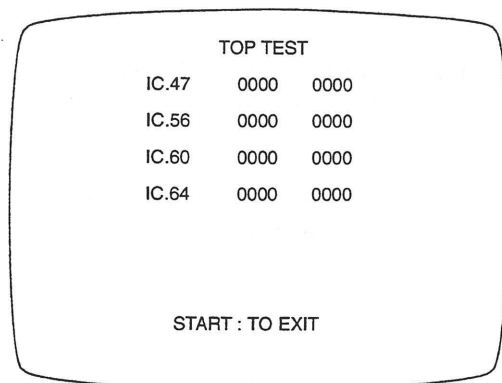


FIG. 8.9 SOUND TEST

- **AUTO:** Auto play covering from BGM to RESULT. Bring the arrow to this item and press TEST SW or START BUTTON to cause SOUND TEST covering from BGM to RESULT will be automatically and repeatedly be performed.
- **BGM:** Background music during game.
- **SE:** Sound effects during game.
- **VOICE:** Announcement and comment during game.
- **NAME:** Announcement and comment during name entry.
- **RESULT:** Announcement during the display of the results.
- **ENGINE:** Engine/Slip/Brake sounds can be emitted by using the ACCEL. pedal, HANDLE pedal and BRAKE pedal respectively.
- **EXIT:** Causes the menu mode to return on to the screen.



8-10 TGP TEST



In this test, TGP (on-screen display related IC) is checked. As shown at the left, if "GOOD" is displayed for all, it is satisfactory. Press TEST SW or START BUTTON to return to the menu screen.

FIG. 8.10 TGP TEST

8-11 MEMORY TEST

The MEMORY TEST mode is for checking the on-BD memory IC functioning. "GOOD" is displayed for normal ICs and "BAD" is displayed for abnormal ICs.

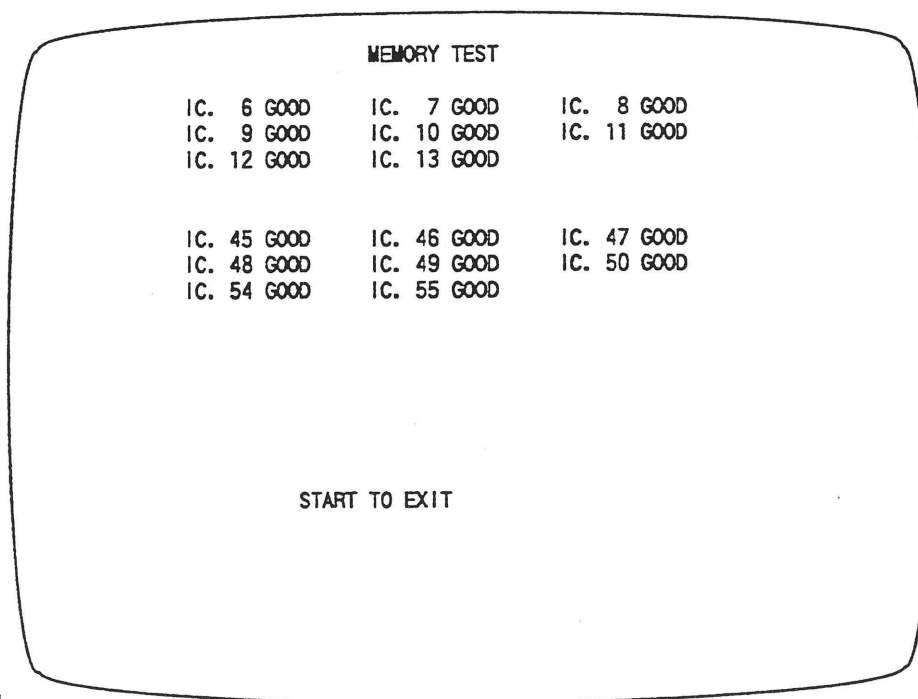


FIG. 8.11 MEMORY TEST

- When the test is completed, if the results are shown as above, it is satisfactory.
- It takes approximately thirty seconds to complete the test. If the period exceeds thirty seconds, this may have been caused by board malfunctioning.
- After finishing the test, pressing the TEST SW or START BUTTON allows the MENU mode to return on to the screen.



8-12 BACKUP RAM CLEAR

Clears the contents of BOOKKEEPING.

When clearing, bring ">>" to "YES" and when not clearing, to "NO", by using the SERVICE SW or VR1 (red)/VR4 (green), and then push the TEST SW or START BUTTON.

When the data has been cleared, "COMPLETED" will be displayed. Bring ">>" to "NO" and press the TEST SW to cause the Menu mode to return on to the screen.

Also, note that the game setting contents are not affected by BACKUP RAM CLEAR operation.

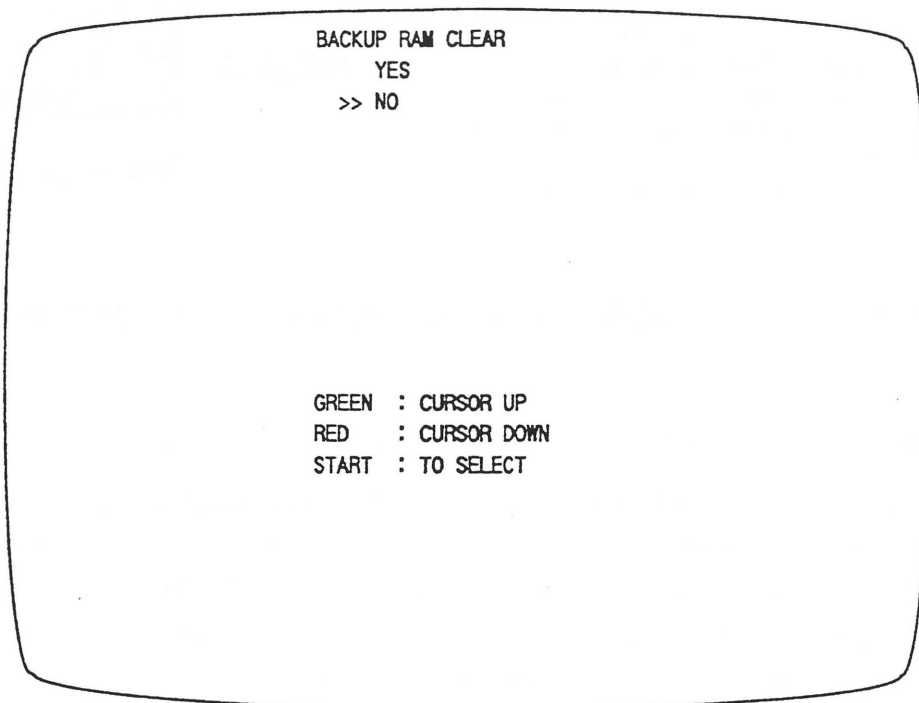
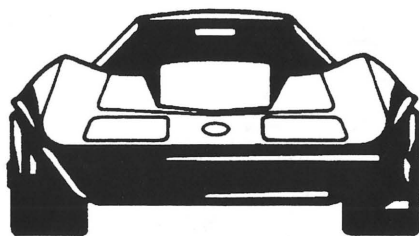


FIG. 8.12 BACKUP RAM CLEAR

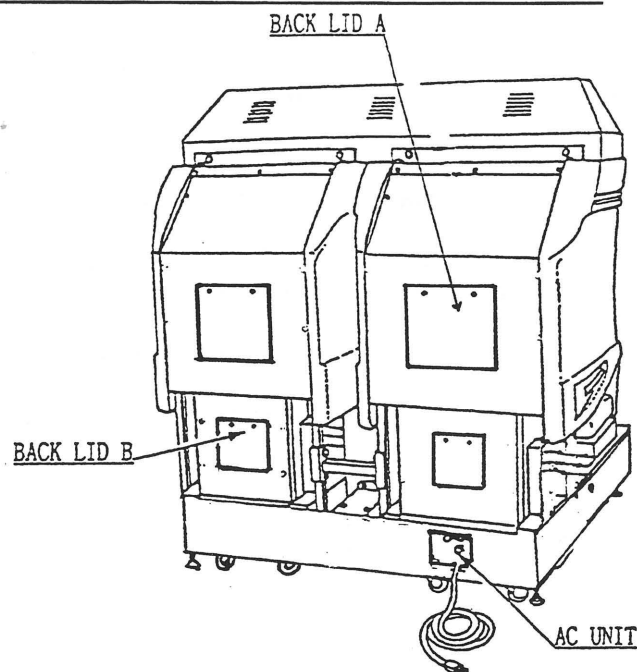


9. CONTROL PANEL (HANDLE MECHA)

In the TEST mode, if the steering wheel V.R. value variations are not within the allowable range, an adjustment of the V.R. installation position or replacement of the V.R. are needed. Also, apply grease to the steering wheel mechanism's shaft and sliding portions once every 3 months.

To perform the above work, take off the 2 screws and remove BACK LID A from the back of the cockpit.

CAUTION! Removing BACK LID A causes the monitor's high tension portion to be exposed. When performing the following work. Be very careful in this regard.



9-1 REPLACING AND ADJUSTING THE HANDLE's (STEERING WHEEL's) V.R.

The upper side V.R. of the HANDLE MECHA is for the GAME BD., and the lower side one, for the DRIVE BD.

Check the value of the V.R. for the DRIVE BD. The appropriate value of each V.R. is as follows:

V.R. for the GAME BD.:	Under 2 DH	← 7DH~83H →	Over D3H
V.R. for the DRIVE BD.:	Under 2 DH	← 7DH~83H →	Over D3H

METHOD OF V.R. REPLACEMENT

To replace the V.R., after taking off the connector from the V.R. to be replaced, take out the 2 screws which secure the VR BRACKET, and remove the V.R. together with the bracket and gear. After the replacement, check the V.R. value variations in the test mode.

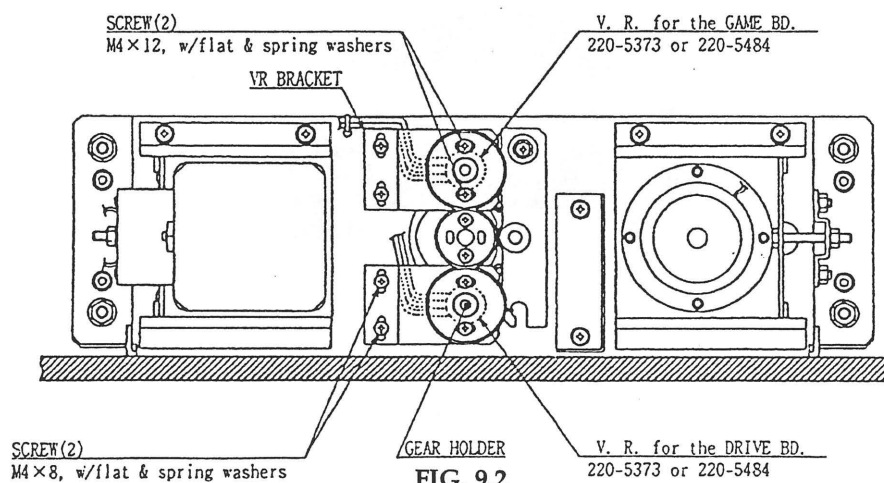


FIG. 9.2



METHOD OF V.R. ADJUSTMENT

- 1) Loosen the 2 screws which secure the V.R. BRACKET, move the V.R. BRACKETS and detach the gears.
- 2) Adjust the V.R. so that it is consistent with the value near the centering position.
- 3) Cause the gears to be engaged and secure the V.R. BRACKET. At this time, make sure that an appropriate backlash is obtained.
- 4) If the V.R. value is not appropriate when the steering wheel is at the centering position, loosen the 2 screws which secure the V.R. gear, turn the gear holder to make a fine adjustment so that the V.R. value is within the allowable range.
- 5) Check the V.R. value variations by turning the handle.

9-2 GREASING

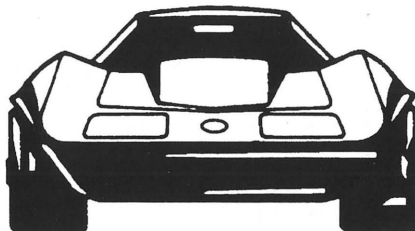
Once every 3 months, grease the gears, bearings, springs, and cam & arm's sliding portions.

9-3 REMOVING THE CONTROL PANEL

For ordinary maintenance as mentioned above, it is not necessary to remove the control panel. However, in the cases where passage space cannot be provided behind the cabinets, the entire controls to be replaced, or the monitor adjustments are to be made, remove the control panel by using the following procedure:

- 1) Take off a total of 4 tamperproof screws from the right-hand side and left-hand side of the control panel's front portion.
- 2) Take off 2 tamperproof screws underneath the control panel.
- 3) Wiring connectors are connected in the control panel. Pull out the control panel by paying careful attention so as not to damage the wiring.
- 4) Remove the wiring connectors.

When the control panel is removed, the monitor adjustment board appears.



10. ACCELERATOR & BRAKE

In the test mode, if the ACCEL. & BRAKE V.R. value is not within the allowable range, an adjustment of V.R. installation position, or a replacement of V.R. is needed. Also, grease the MECHA's shafts and sliding portions once every 3 months.

To perform the above work, take off the 2 screws and remove BACK LID B from the back of the cockpit.

10-1 ADJUSTMENT AND REPLACEMENT OF VOLUME

The ACCEL. & BRAKE MECHA can be seen by removing the front lid. The ACCEL. V.R. is on the left-hand side and the BRAKE F.R. is on the right-hand side of the MECHA. Check the V.R. value in the test mode. The appropriate value of each V.R. is as follows:

	When released:		When stepped on:
ACCEL.:	Under 2 DH	↔	Over D3H
BRAKE:	Under 2 DH	↔	Over D3H

METHOD OF V.R. REPLACEMENT

To replace the V.R., after taking off the connector from the V.R. to be replaced, take out the 2 screws which secure the VR BRACKET, and remove the V.R. together with the bracket and gear. After the replacement, check the V.R. value variations in the test mode.

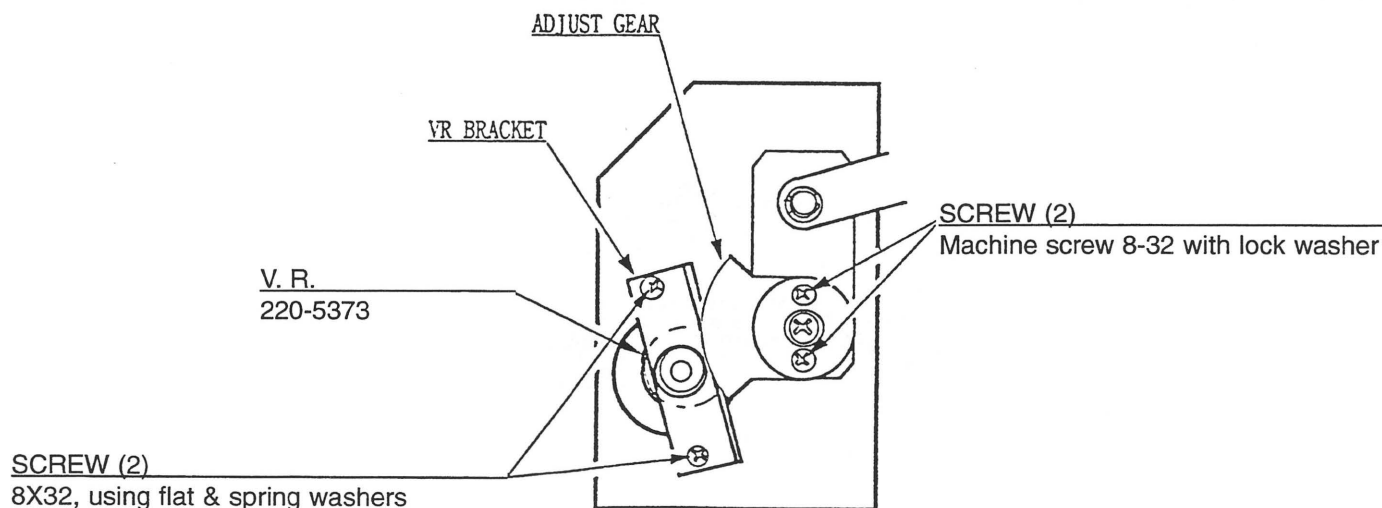


FIG. 10.2

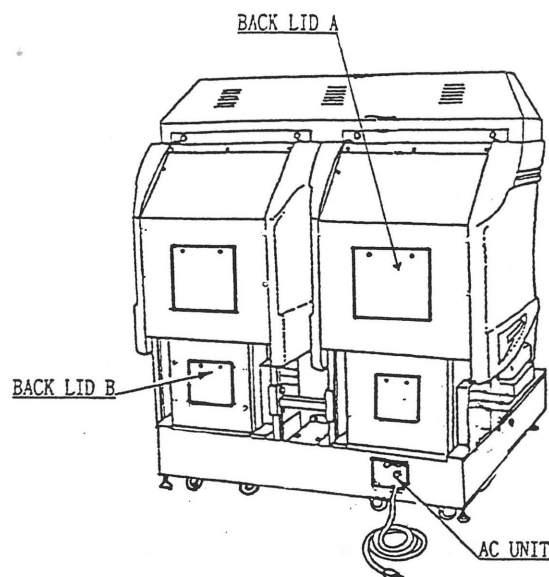


FIG. 10.1



METHOD OF V.R. ADJUSTMENT

- 1) Loosen the 2 screws which secure the V.R. BRACKET, move the V.R. BRACKETS and disengage the gears.
- 2) Cause the V.R. value to match with the value obtained when the pedal is released.
- 3) Cause the gears to be engaged and secure the V.R. BRACKET. At this time, be sure to obtain an appropriate backlash.
- 4) Step on the pedal and check the V.R. value variation.

10-2 GREASING

Grease the gears and bearings once every 3 months as a standard.

11. 4 SPEED SHIFTER

In the test mode, if the shift lever input is found to be irregular, replace the switch or adjust the switch installation position. Also, grease the MECHA's shafts or sliding portions once every 3 months as a standard.

When performing the above work, remove the shift lever unit. MSCRTP SCREW (4)
8-32

11-1 REMOVING THE SHIFTER

- 1) Take off the 4 screws and remove SHIFT COVER A.
- 2) Take out the 4 SPECIAL BOLTs and pull out the SHIFT LEVER UNIT upward by paying careful attention so as not to cause damage to the wiring.
- 3) Disconnect CONNECTOR 6P and remove the shift lever unit.

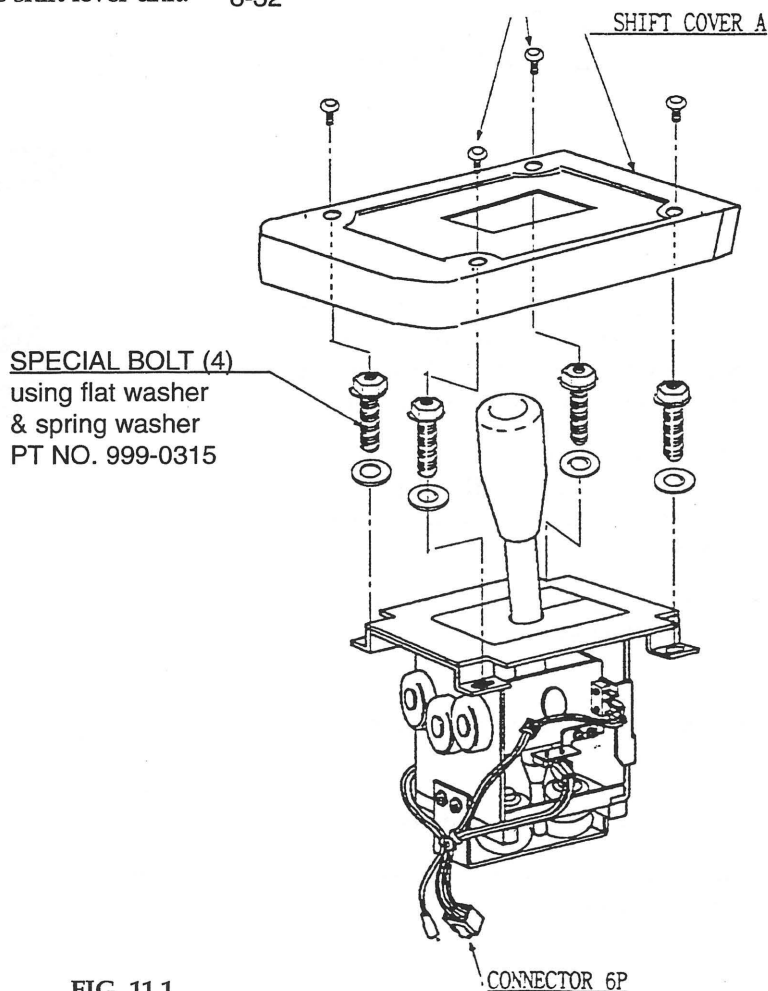


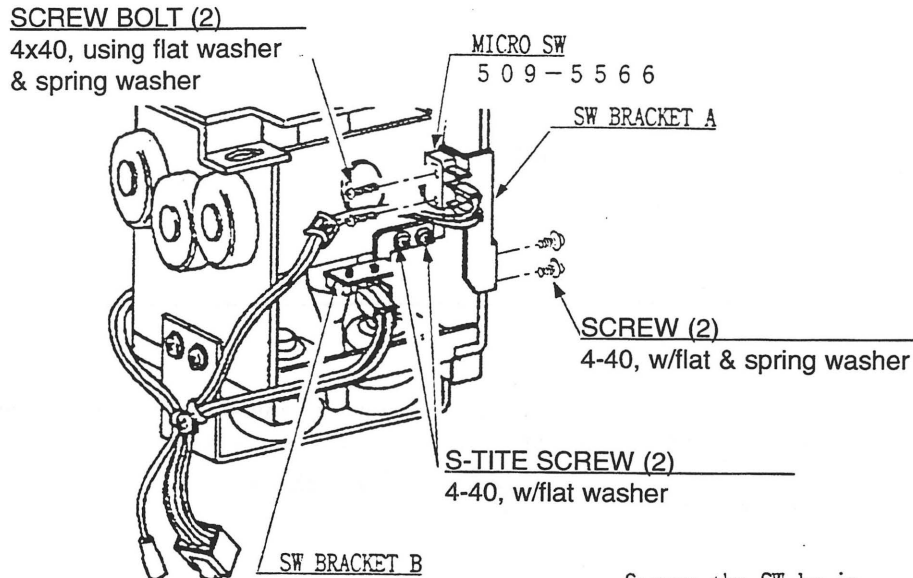
FIG. 11.1



11-2 REPLACEMENT AND ADJUSTMENT OF SWITCH

METHOD OF REPLACEMENT

- 1) Disconnect the wiring connector of the SW to be replaced.
- 2) Take off the 2 screws which secure the BRACKET (SW BRACKET A & B) to which the SW is attached, and remove the SW together with the bracket. (FIG. 11.2)
- 3) Take off the 2 screws which secure the SW, and replace the SW.



Secure the SW by inclining it clockwise.

Secure the SW by inclining it counterclockwise.

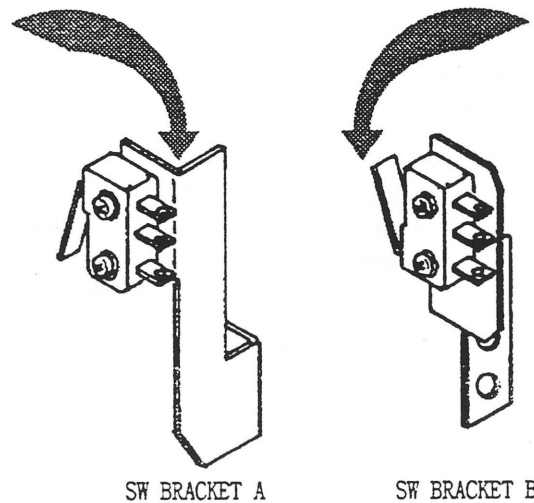


FIG. 11.3

FIG. 11.2

- 4) To secure the replaced SW to the bracket, incline it as shown (FIG. 11.3). Securely fasten the screws by applying an anti-loosening agent to the screws.
- 5) Install the SW bracket with 2 screws. When installing SW BRACKET A, an adjustment in the following procedure is required.
- 6) After SE replacement, check the SW input in the test mode.

ADJUSTMENT TO BE MADE AT THE TIME OF INSTALLING SW BRACKET A

- 1) Shift to the first or second gear.
- 2) At this time, secure SW bracket A with 2 screws in a manner so that the SW attached to SW Bracket A is caused to be ON.



11-3 GREASING

Apply grease to the following points once every 3 months as a standard. Also, note that RUBBER RING 70 is not of an oil-resistant type and is susceptible to a quality deterioration if oil attaches.

Make sure that grease and any other type of oil do not adhere to it.

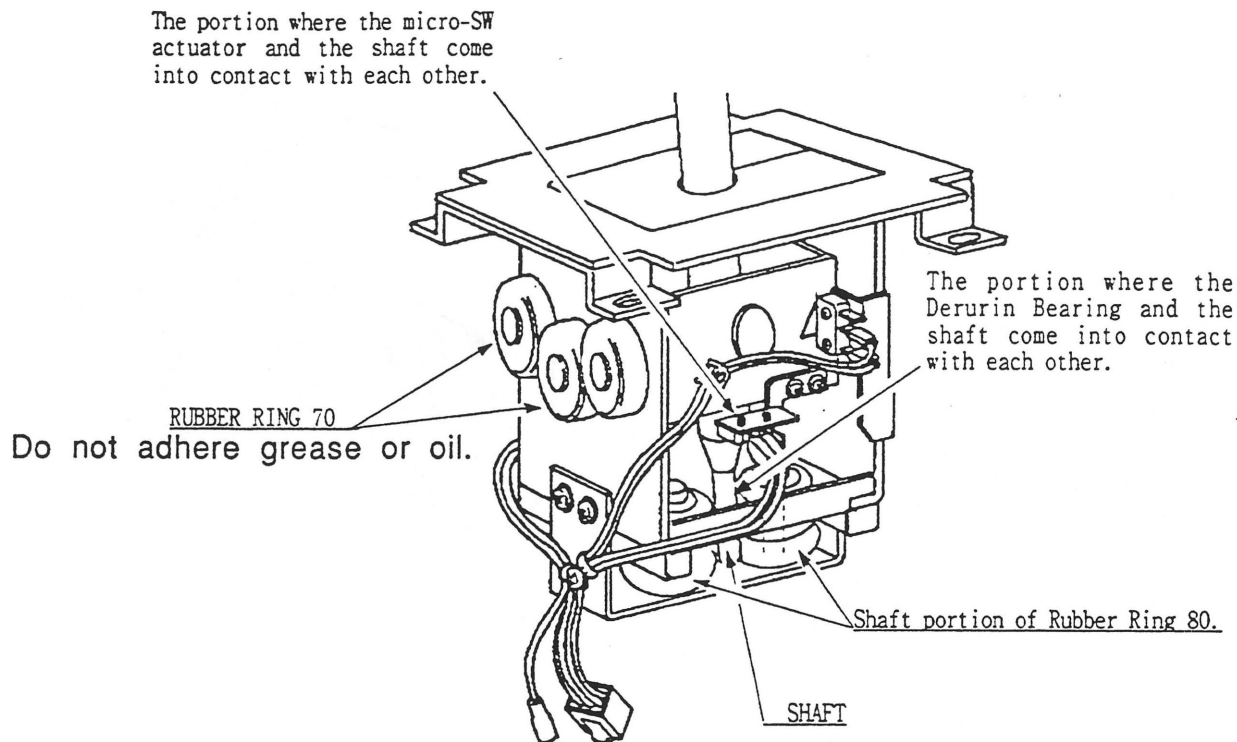


FIG. 11.4

11-4 REPLACEMENT OF RUBBER STOPPERS

Once every 6 months as a standard, check to see if any damage is caused to the rubber stoppers. If they are damaged, replace them with the spare parts in the procedure shown in the FIG. below.

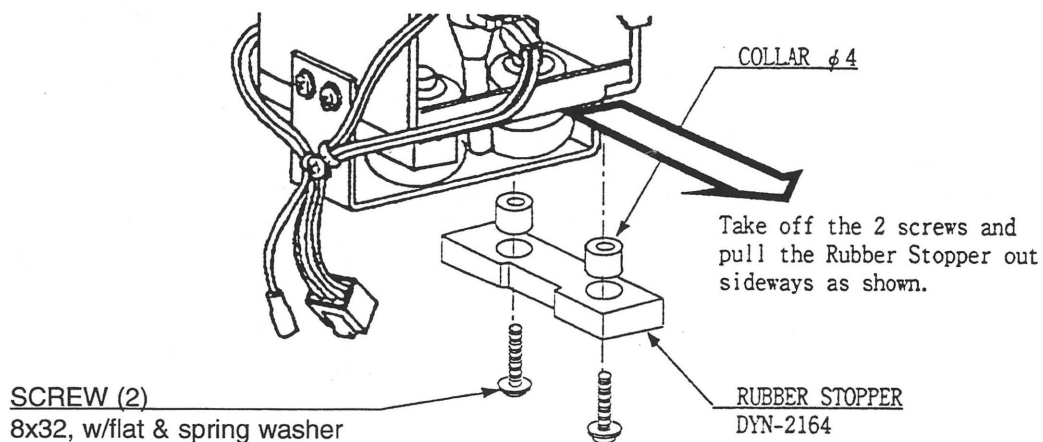


FIG. 11.5



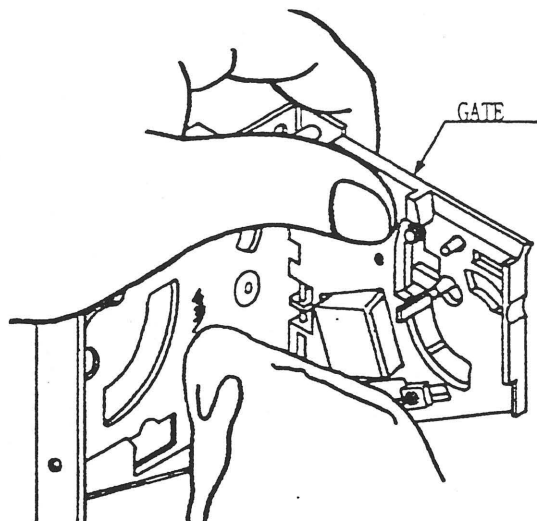
12. COIN SELECTOR

HANDLING THE COIN JAM

Even when the REJECT button is pressed, if the coin is not rejected, open the coin chute door and open the selector gate. After removing the jammed coin, put a normal coin in and check to see that the selector correctly functions.

CLEANING THE COIN SELECTOR

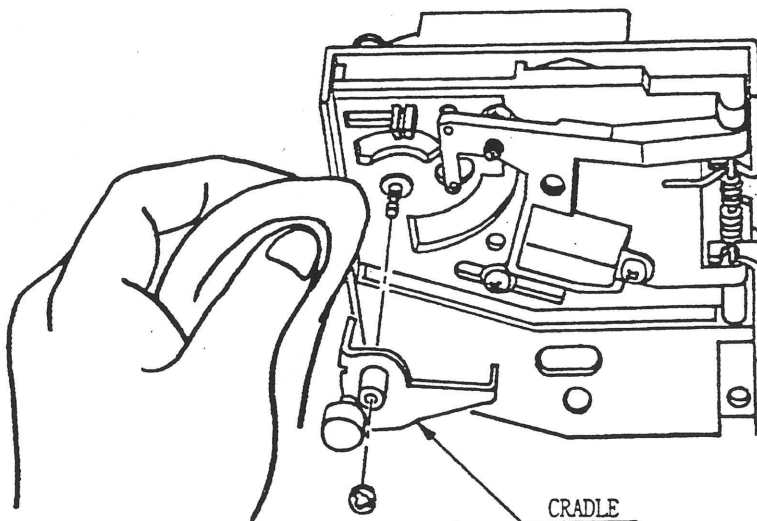
- 1) Turn the power for the machine OFF.
Open the coin chute door.
- 2) Open the gate and dust off by using a soft brush (made of wool, etc.).
- 3) Remove stain by wiping with a soft cloth which contains water or chemicals detergent.
- 4) Remove the CRADLE. When removing the retaining ring (E ring), be very careful so as not to bend the shaft.
- 5) Remove stain from the shaft and pillow portions by wiping off with a soft cloth, etc.
- 6) After wiping off as per 5 above, further apply a dry cloth, etc. to cause the coin selector to dry completely.



NOTE:

Absolutely do not apply machine oil, etc. to the coin selector.

After cleaning the coin selector, insert a regular coin in the normal working status and ascertain that the selector correctly functions.



13. MONITOR ADJUSTMENTS

CAUTION!

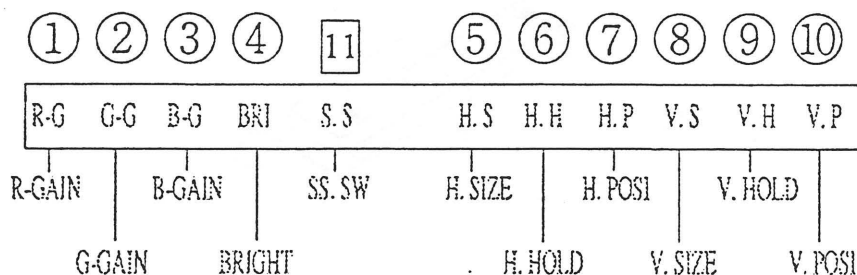
- Do not operate the ADJUSTMENT knobs without good reason.
- A certain portion of the monitor is subject to a high voltage and therefore be very careful of this point.
- When making adjustment, utilize a resinous Alignment Screwdriver.

Remove LID A on rear of cabinet to make the monitor adjustments (refer to 9.3).

NANAO monitor: 24K mode

Model: MS 8-2654

2001-5187-15



- ① R-GAIN
- ② G-GAINControls colors.
- ③ B-GAIN
- ④ BRIGHTControls horizontal brightness.
- ⑤ H. SIZEControls horizontal screen size.
- ⑥ H. HOLDProvides horizontal synchronization, i.e., controls right/left blurring of image.
- ⑦ H. POSIControls horizontal display position on screen.
- ⑧ V. SIZEControls vertical screen size.
- ⑨ V. HOLDProvides vertical synchronization, i.e., controls up-down scrolling of image.
- ⑩ V. POSIControls vertical display position on screen
- 11 H. POSIControls the visual quality. (Only applies to Nanao.)

A: Ordinary B: Super-sharpness



14. REPLACING THE FLUORESCENT LAMP, AND LAMPS

In a manner as shown below, remove the parts and replace the fluorescent lamp.

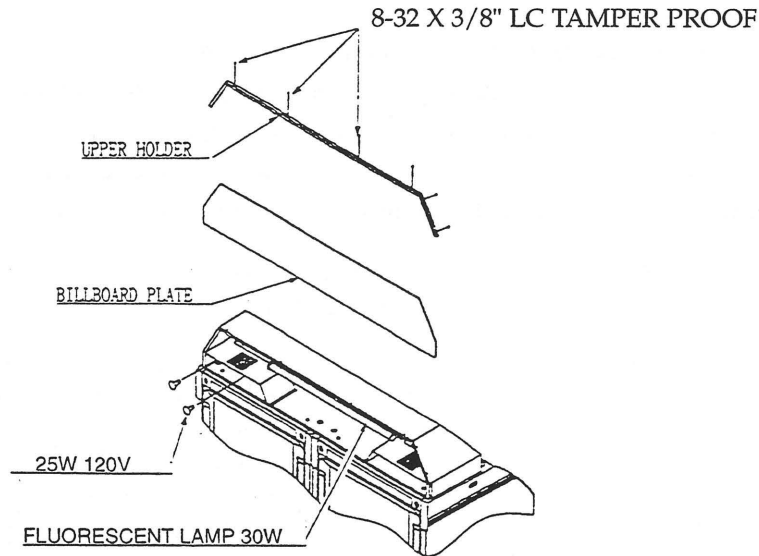


FIG. 14

15. PERIODIC CHECK

The items listed below require periodic check and maintenance to retain the performance of this machine and to ensure safe business operation.

	ITEM	INTERVAL	REFERENCE
CONTROL	Check lamp.	Monthly	8
	Check VOLUME VALUE.	Monthly	6, 8
	Check ADJUST GEAR engagement.	Trimonthly	9 - 1
	Greasing of GEAR and bearing.	Trimonthly	9 - 2
ACCEL. & BRAKE	Check VOLUME VALUE.	Monthly	6, 8
	Check ADJUST GEAR engagement.	Trimonthly	10 - 1
	Greasing of GEAR and bearing.	Trimonthly	10 - 2
4 SPEED SHIFTER	Check SW.	Monthly	6, 8
	Greasing of bearing.	Trimonthly	11 - 3
	Check RUBBER STOPPERS.	Semi-yearly	11 - 4
COIN CHUTE TOWER	Check COIN SW.	Monthly	8
	Cleaning of COIN SELECTOR.	Trimonthly	12
MONITOR	Check adjustments.	Monthly	6, 8, 13
SEAT	Antistatic measures	Bi monthly	5
GAME BD	MEMORY TEST.	Monthly	8
	Check settings.	Monthly	8



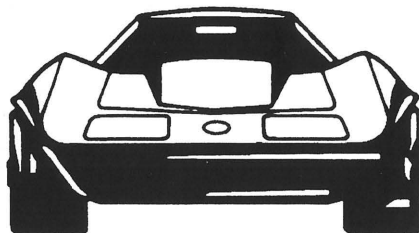
16. TROUBLESHOOTING

In case a problem occurs, first check wiring connector connections.

PROBLEMS	CAUSE	COUNTERMEASURES
When the main SW is turned ON, the machine is not activated.	The power is not ON. Incorrect power source/voltage. AC UNIT CIRCUIT PROTECTOR functioned due to instantaneous overcurrent.	Firmly insert the plug into the outlet. Make sure that the power supply/voltage are correct. First, remove the cause of overcurrent and reinstate the circuit protector to its original status (refer to Sec. 6).
MONITOR screen is blackened and the fluorescent lamp does not light up.	Power supply unit fuse blown off due to instantaneous overcurrent.	First remove the cause of overcurrent, then replace the fuse (refer to Sec. 17). <div>FUSE 10A 250V</div>
MONITOR screen is all blue.	Defective connections in between each board.	Make sure of correct connections in between each board.
The color of image on MONITOR screen is incorrect.	Incorrect monitor adjustment.	Make appropriate adjustments (see Sec. 13)
The on-screen image of the monitor sways and or shrinks.	The power source and voltage are not correct.	Make sure that the power supply and voltage are correct.
Control panel and pedal not operable satisfactorily.	V.R. position deviated, or V.R. malfunctioning. ADJUST GEAR's engagement is not correct.	Adjust or replace the V.R. (see Sec. 9 & 10). Adjust the engagement of ADJUST GEAR (see Sec. 9 & 10).
SHIFT LEVER doesn't operate satisfactorily.	Switch position deviated, or switch malfunctioning.	Adjust or replace the Switch (see Sec. 11). <div>SW MICRO TYPE</div>
Steering Wheel reaction strength is insufficient.	POWER ON CHECK not performed correctly. V.R. position deviated, or V.R. malfunctioning. Reaction mecha's secular change.	First turn the power off and then turn it back on again. Complete the POWER ON CHECK. Adjust or replace the V.R. (see Sec. 9). Change DRIVE BD DIP SW setting (see Sec. 8 & 17).



PROBLEMS	CAUSE	COUNTERMEASURES
Fluorescent lamp doesn't light up.	Fluorescent lamp need replacement. The connector is disconnected.	Replace the fluorescent lamp (see Sec. 14). Check connector connections in the billboard case (see Sec. 6)
The LEADER lamp does not light up.	The lamp is burnt out. The connector is disconnected.	Replace the lamp (see Sec. 14). Part No. 390-5167 Check connector connections in the billboard case (see Sec. 6).
Interactive play is not possible.	Communication cable is disconnected. Cable connections are not correct. Settings for communication play are not correct.	Connect the cable. Connect the cable correctly (see Sec. 19). Ensure that GAME SYSTEM settings are correct (see Sec. 8).
sound is not emitted.	Sound volume adjustment is not correct. Malfunctioning of sound BD and memory.	Adjust the SWITCH UNIT's sound adjustment volume (control) (see Sec. 8). Perform SOUND TEST (see Sec. 8).



17. GAME BOARD

17-1 REMOVING THE BOARD

To replace the IC BD (such as Game BD, Drive BD, etc.), or to change DIP SW settings, take out the IC BD by using the following procedure:

- 1) Turn the MAIN SW off.
- 2) Unlock and take off the 2 truss screws from the side of the base as shown.
- 3) Turn the knob to unlock. The seat can be inclined in the direction shown. When inclining the seat, be careful so as not to damage the seat parts. Carefully cause the backrest portion of the seat to come into contact with the floor.

If the floor has hard surfaces, protect the seat form damage by using a cloth, etc. on the floor surfaces.

- 4) Take off the 3 screws to remove the case lid. The GAME BD and I/O BD are incorporated in the shield case.

- 5) Take off a total of 4 screws from both sides with the seat being in an inclined state and remove BASE LID F. Removing BASE LIS F allows the power supply unit, drive BD and sound BD to be checked.

Fuses are placed in the power supply.

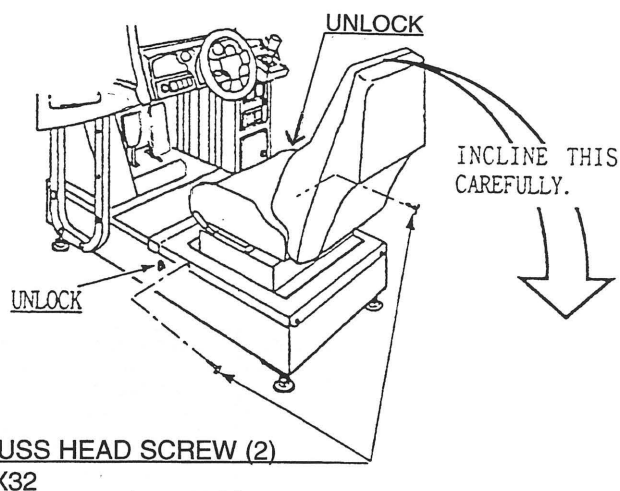


FIG. 17.1

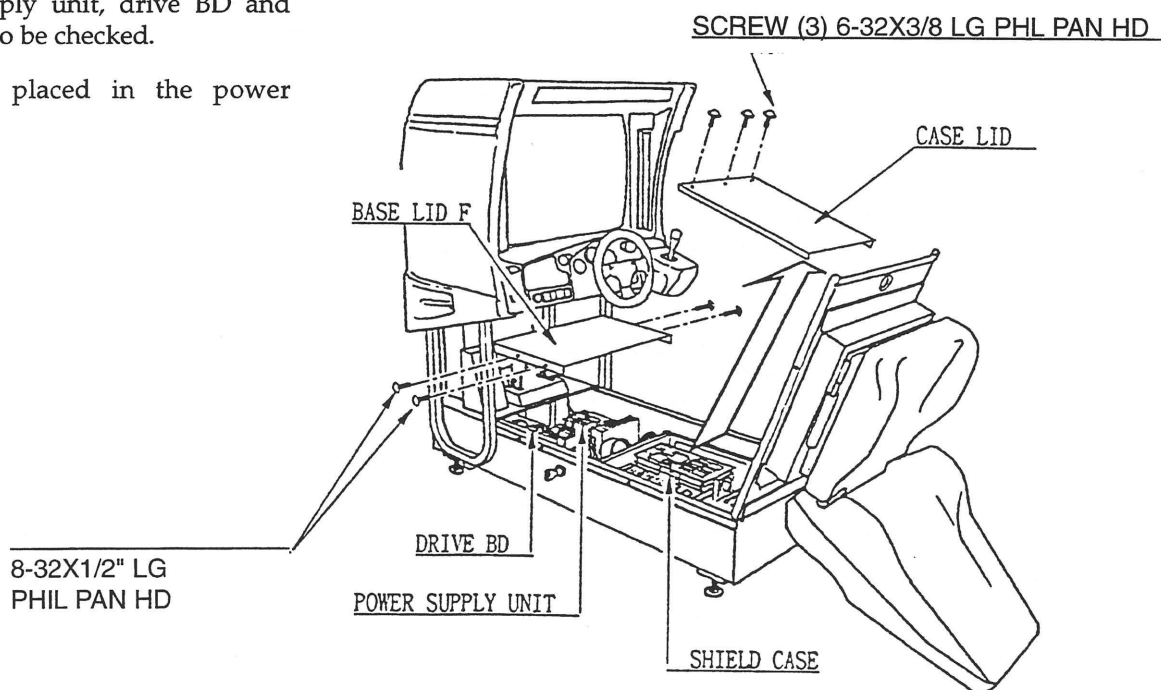


FIG. 17.2



17-2 COMPOSITION OF GAME BOARD

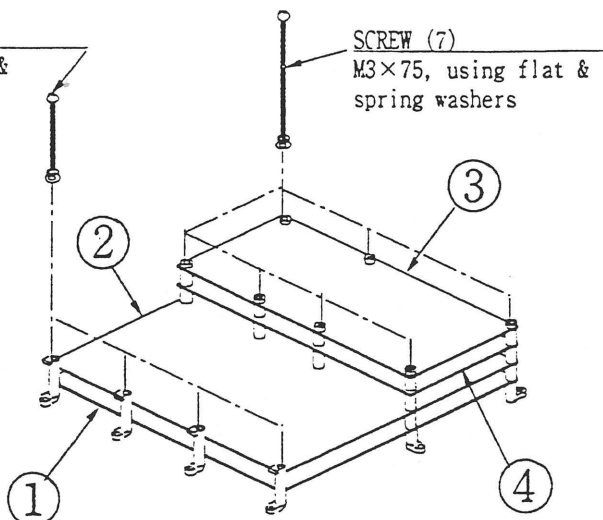
GAME BD DAYTONA USA TWIN (833-10651)

SCREW (4)

M3×35, using flat & spring washers

SCREW (7)

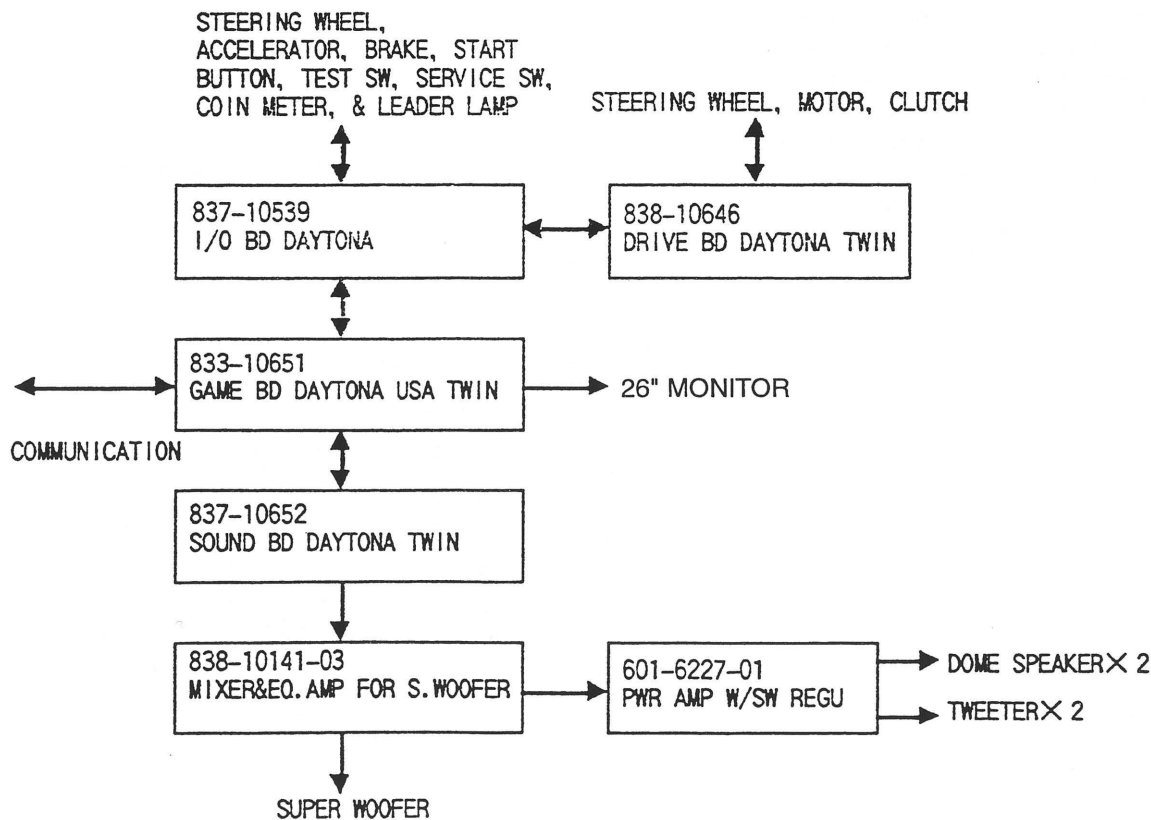
M3×75, using flat & spring washers



NO.	PART NO.	DESCRIPTION
1	837-10072	CGT VIDEO BD COM
2	837-10071	CGT CPU BD COM
3	834-10798	ROM BD DAYTONA TWIN
4	837-10537	COMM BD DAYTONA TWIN

17-3 INPUT AND OUTPUT RELATIONS

GAME BD DAYTONA USA TWIN (833-10651)

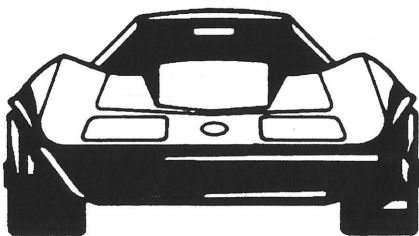
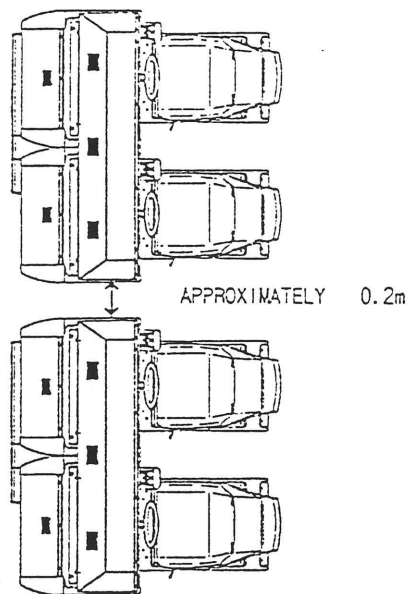


18. COMMUNICATION PLAY

This machine allows up to 8 persons to play simultaneously by linking plural units.

18-1 INSTALLATION PRECAUTIONS

- 1) When linking a number of machines, be sure to supply sufficient power for the corresponding number of machines. The pre unit standard voltage/amperage is 100~120V/15A.
- 2) Due to the length of the communications cable, the distance in between the machines will be approximately 8 in. or less.



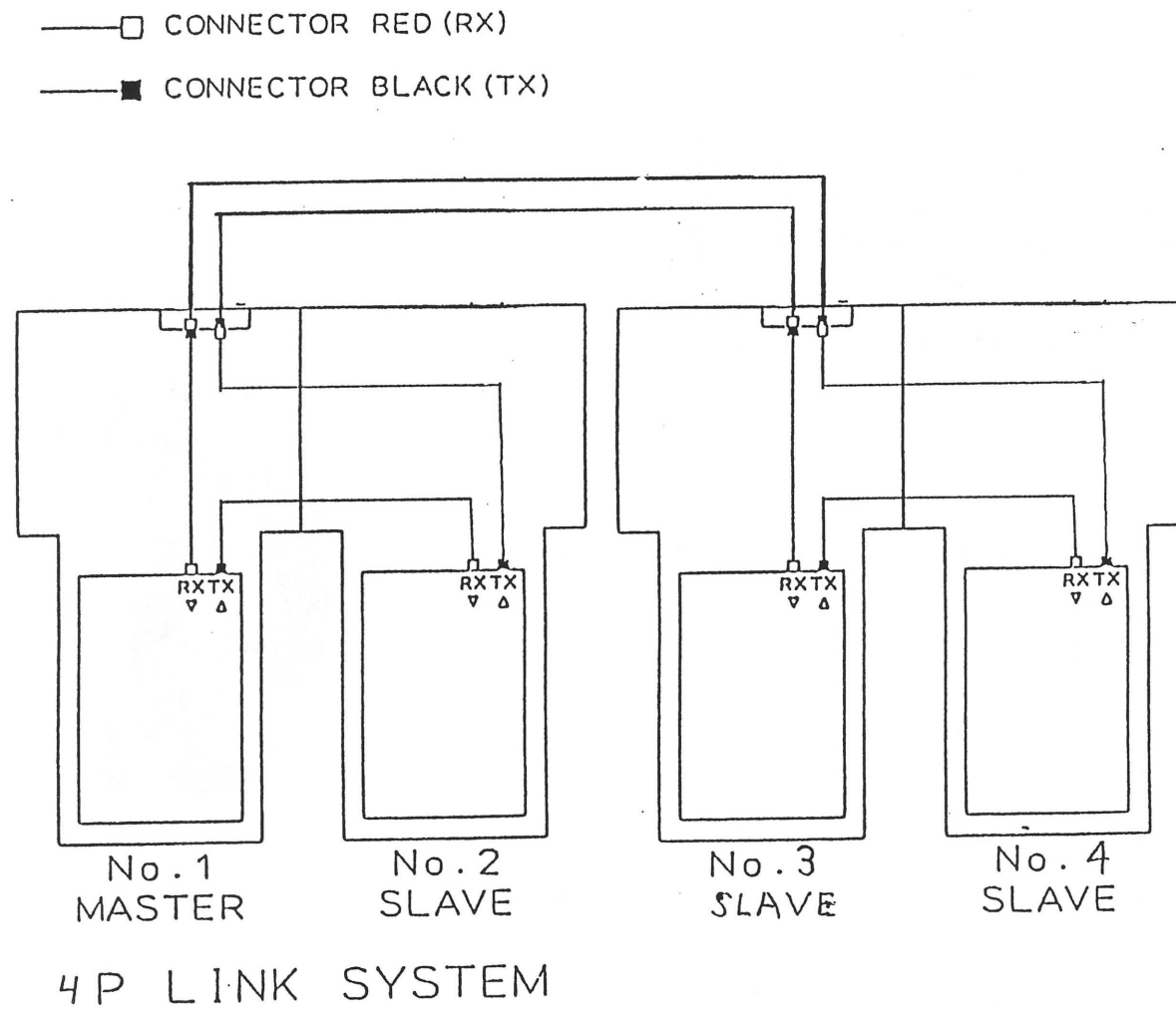


FIG. 19. 6



—□ CONNECTOR RED (RX)
—■ CONNECTOR BLACK (TX)

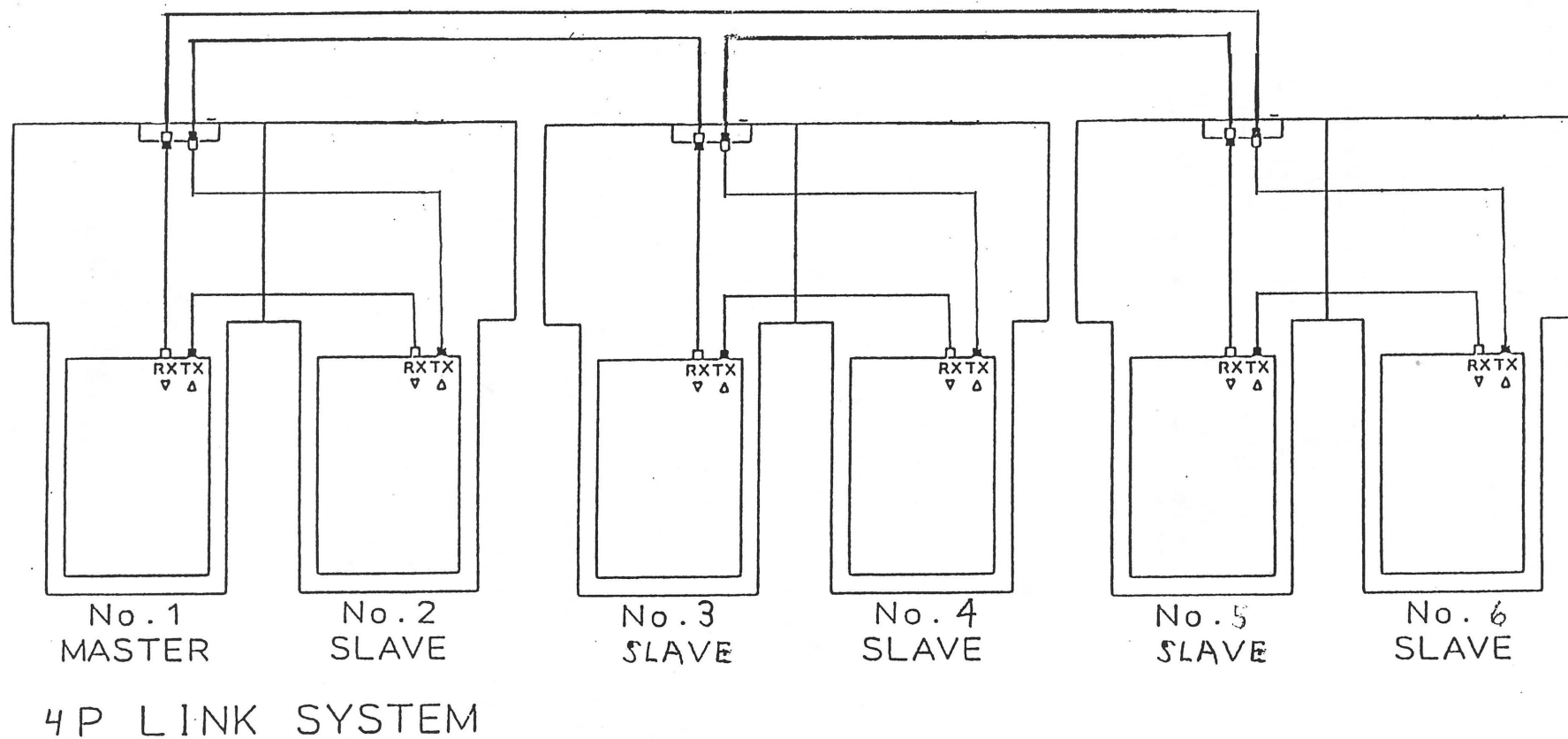
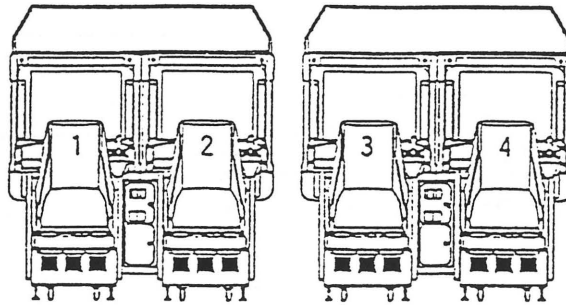


FIG. 19. 6

Apply the Seat No. display stickers in a manner so that they will line up in the sequential order of No. 1, No. 2, No. 3 and so on starting from the left side (as viewed facing the monitor's front side) of the unit which was connected with the other unit(s). Apply STICKER (No. 4211-8542) to the seats (refer to Section 18).



18-3 SETTING FOR COMMUNICATION PLAY

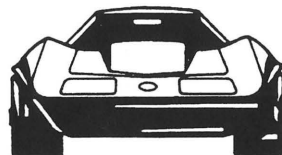
Cause all of the machines to enter the test mode and change the game setting for each seat in a manner so as to meet the communication play. When changing the setting, refer to explanations mentioned in Section 8.

- 1) Press the TEST button to enter the test mode and choose "GAME SYSTEM".
- 2) Move the arrow mark (>>) to "LINK ID" and press the TEST SW to allow one of the cabinets to be set to "MASTER". Set all other cabinets to "SLAVE".
- 3) Bring the arrow mark to "CAR NUMBER," press the TEST SW and set plural number of the machines sequentially to No. 1, No. 2, No. 3 and so on as applicable starting from the extreme left facing the monitor's front side. If the same number is set for 2 or more cabinets, or if the sequential order is incorrect, the game display, etc. will be confused (different from the actual status). Therefore, be careful of this point.

In the case of communication play, the game difficulty setting is made by the MASTER cabinet. Even if the setting is changed by the SLAVE machines, the setting will not be effective for the game.

18-4 CAUTIONS TO BE HEEDED WHEN USING THE TEST MODE

Exiting from the test mode causes the unit to perform the network check automatically. During this time, all of the linked units will not allow the game to be played in normal status. Therefore, be sure not to enter the test mode if any one of the units is in play. On the other hand, if even one unit is in the mode, make sure that other machines are not in play.



19. DESIGN RELATED PARTS

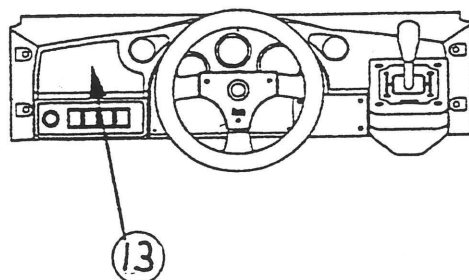
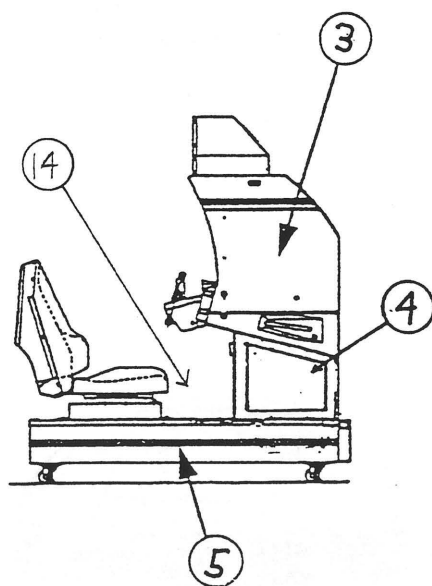
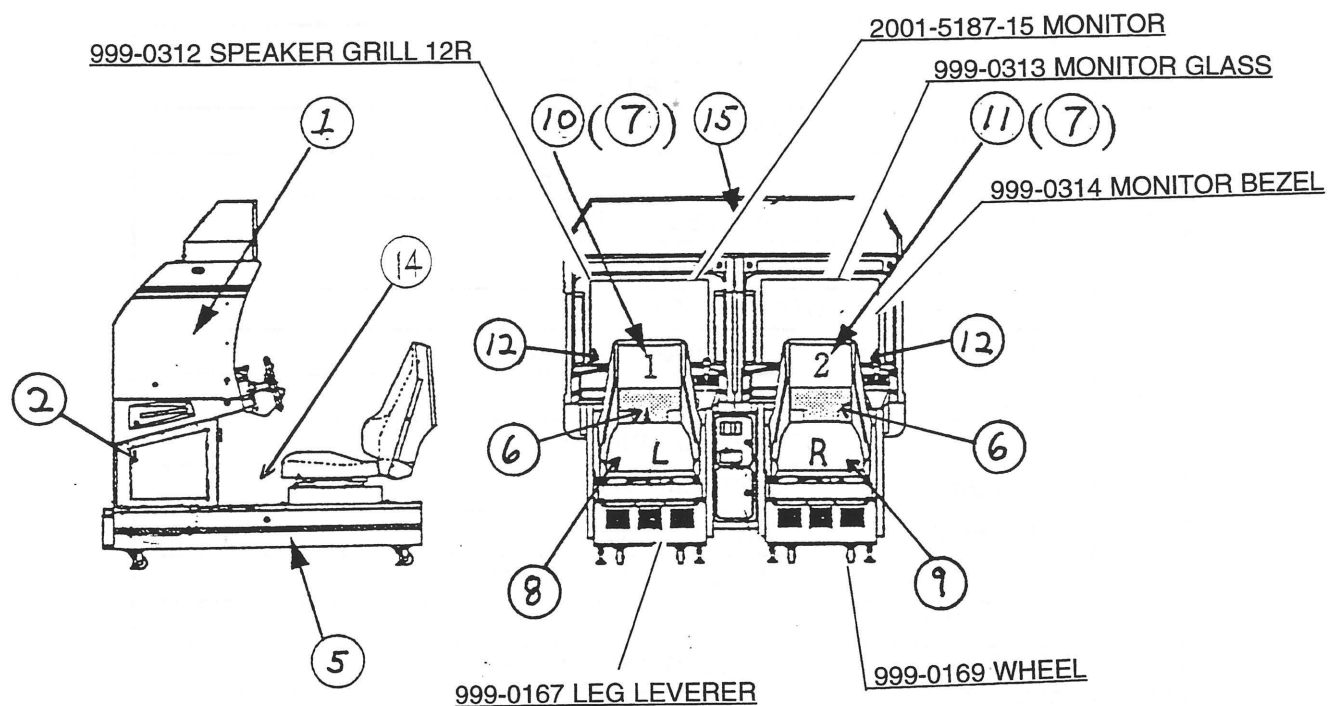


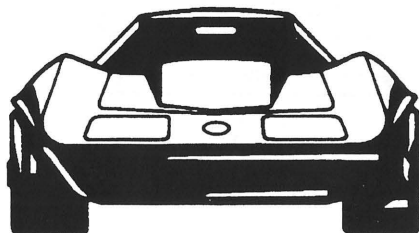
FIG. 19



TABLE 19

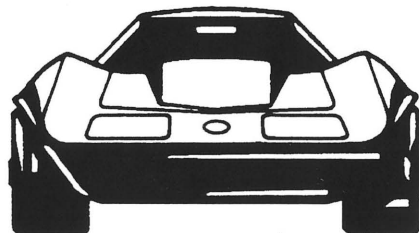
NO.	PART NO.	DESCRIPTION
1	DYN1-1301-B	STICKER SIDE L UPPER
2	999-0305	STICKER SIDE L LOWER
3	DYN1-1041-B	STICKER SIDE R UPPER
4	999-0306	STICKER SIDE R LOWER
5	DYN1-2002-B	STICKER LINE
6	DYN0-2084-B	STICKER SEAT BACK
7	4210-8542	STICKER CAR NO TWIN 3-8
8	4210-8543	STICKER CABINET L
9	4210-8544	STICKER CABINET R
10	4210-8546	STICKER CAR NO 1
11	4210-8547	STICKER CAR NO 2
12	4221-0478-01	PLAY INSTR DYN TWIN ENG
13	422-0479-01	PLAY INSTR V.R. BUTTON
14	DYN0-1214	SEAT ADJUSTMENT DECAL
15	DYN0-0202J	BILLBOARD PLATE

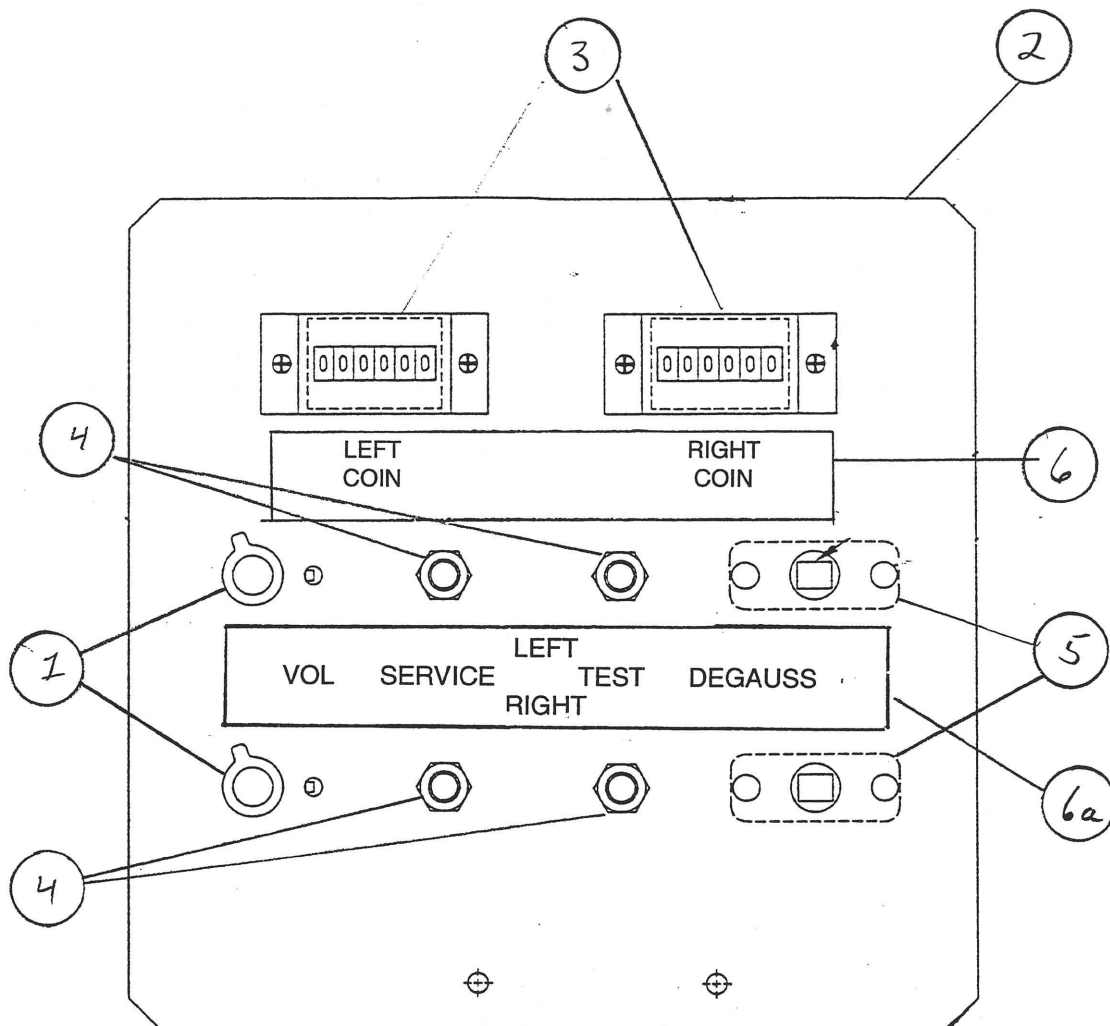
- STICKER NO. 10 is used when plural machines are linked for interactive play (refer to Section 19).



ITEM	PART NUMBER	DESCRIPTION
1		Fuse 10A* 5A s/o, 6A
2	999-0307	Power Transformer
3	999-0102	150W Power Supply
4	838-10646	Motor Driver BD
5	950-0045 or 450-5054	Solid State Rely
6	838-10141-03	Mixer Seq. Amp for S. Woofer
7	601-6227-01	Power Amp

* Note 10A fuse not used on right side. Always replace fuse with some type and rating for continued protection against risk of fire.



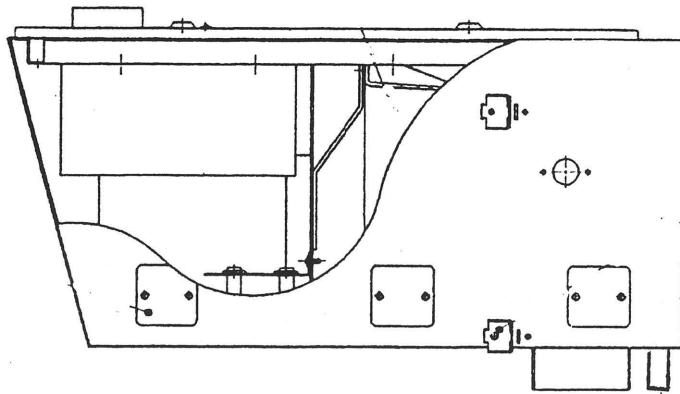
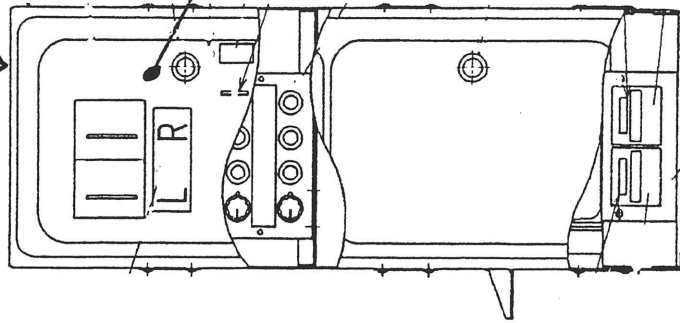


ITEM	PART NUMBER	DESCRIPTION
1		5 k Volume Pot
2		Bracket
3		Coin Meter (6VDC, No Diode, No Light)
4		Push Button Switch
5		3A Push Button Switch
6		Label 1
7		Label 2



FRAME PN 999-0308

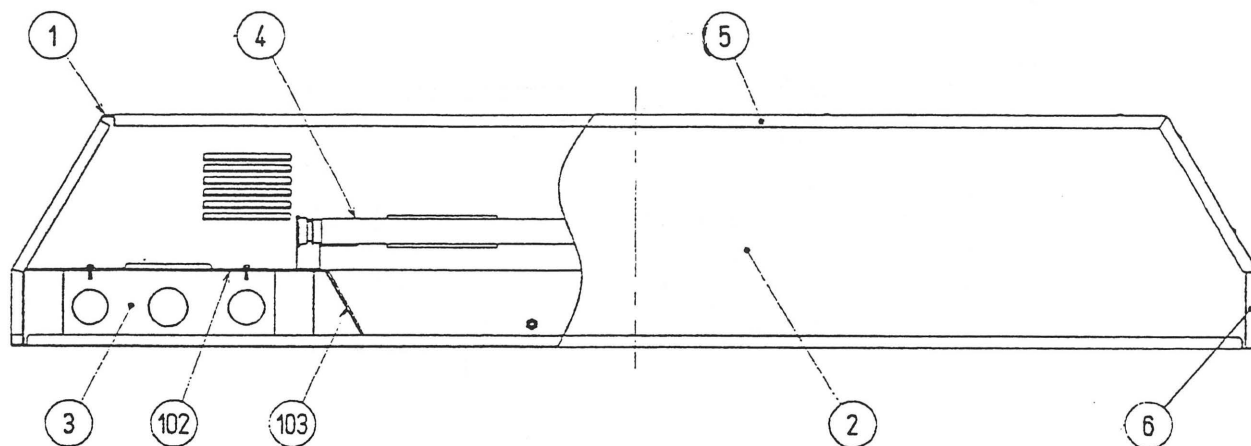
COIN DOOR ASSY : COIN CONTROLS



FIBER OPTICS LINK



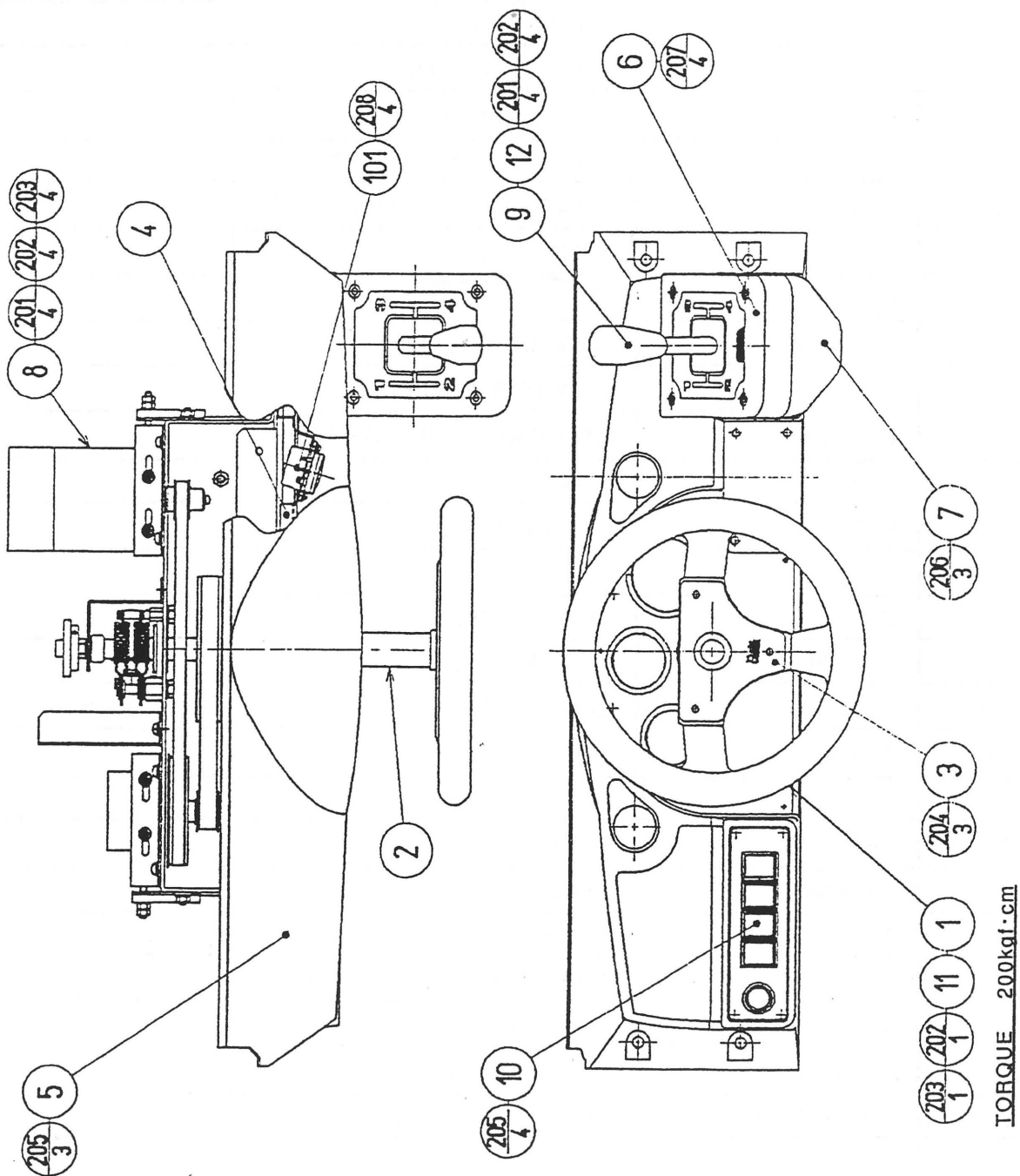
② ASSY BILLBOARD



ITEM	PART NUMBER	DESCRIPTION
1	DYN1-0201	BILLBOARD CASE
2	DYNO-0202	BILLBOARD PLATE
3		LAMP UNIT
4		FL UNIT 30W
5	DYN1-0203	UPPER HOLDER
6	DYN1-0204	SIDE HOLDER
		INCANDESCENT BULB 25W 120V



⑩ ASSY CONT PNL TWIN (DYN-12001)

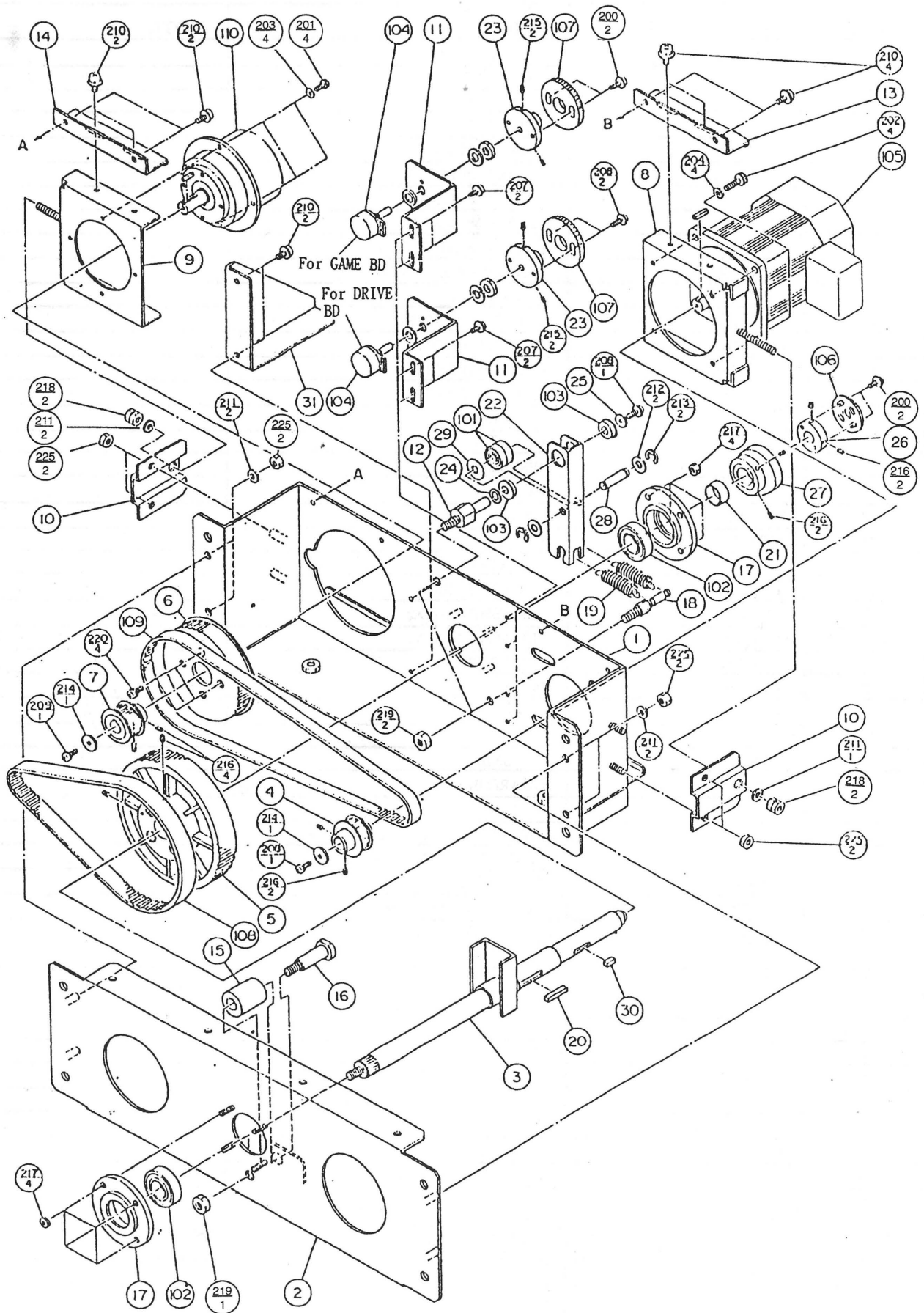


⑩ ASSY CONT PNL TWIN (DYN-12001)

ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYN-1201	STEERING WHEEL	
2	DYN-1209	HANDLE COLLAR	
3	DYN-1210	STEERING EMBLEM	
4	DYN-1212	CONTROL PANEL BRKT TWIN	
5	DYN-1214	CONTROL PANEL COVER	
6	DYN-1222	SHIFT COVER A	
7	DYN-1223	SHIFT COVER B	
8	DYN-1250	ASSY HANDLE MECHA	
9	DYN-2150	ASSY 4 SPEED SHIFTER	
10	DYN-1290	ASSY VIRTUAL BUTTON TWIN	
11	OUT-2026	SPACER	
12	DYN-1224	SPL BLT M8	
101	130-5112	TWEETER 80HM 2W	
102	601-0460	PLASTIC TIE BELT 100mm	
103	280-5009	CORD CLAMP Ø 21	-01 ALSO ACCEPTABLE
104	280-0419	HARNESS LUG	
201	606-F00800	FLT WSHR M8	
202	060-S00800	SPR WSHR M8	
203	050-H00800	HEX NUT M8	
204	008-T00508-0C	TMP PRF SCR TH CRM M5X8	
205	000-T00416-0C	M SCR TH CRM M4X16	
206	00-P00412-W	M SCR PH W/FS M4X12	
207	000-T00412-0B	M SCR TH BLK M4X12	
208	000-P00308-W	M SCR PH W/FS M3X8	



ASSY HANDLE MECHA (DYN-1250)



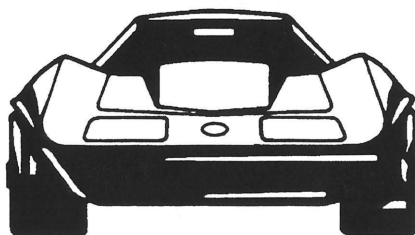
ASSY HANDLE MECHA (DYN-1250)

ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYN-1251	HANDLE BASE	
2	DYN-1252	BASE LID	
3	DYN-1253	HANDLE SHAFT	
4	DYN-124	DRIVE PULLEY	
5	DYN-1255	HANDLE PULLEY	
6	DYN-1256	CLUTCH PULLEY A	
7	DYN-1257	CLUTCH PULLEY B	
8	DYN-1258	MOTOR BRACKET	
9	DYN-1259	CLUTCH BRACKET	
10	DYN-1260	TENSIONER BRACKET	
11	DYN-1261	VR BRACKET	
12	DYN-1262	SWING ARM SHAFT	
13	DYN-1263	GUIDE HOLDER A	
14	DYN-1264	GUIDE HOLDER B	
15	DYN-1265	STOPPER RUBBER	
16	DYN-1266	STOPPER BOLT	
17	DYN-1267	HOUSING	
18	DYN-1268	SPRING HOOK	
19	DYN-1269	EXT SPRING	
20	DYN-1270	STOPPER KEY	
21	DYN-1272	SPACER RING	
22	DYN-1273	SWING ARM	
23	BVG-1221	GEAR HOLDER	
24	BVG-1340	FLT WSHR 8.1-12X2	
25	BVG-1341	FLT WSHR 4.1-12X2	
26	SLC-1130	ADJUST RING	
27	SLC-1141X	WHITE CAM	
28	SOR-2112	BEARING SHAFT	
29	SOR-2113	SPACER	
30	SOR-2115	KEY 5X10	
31	DYN-1274	GUARD BRKT	
101	100-5018	BALL BEARING Ø 8 (NSK 608ZZ)	
102	100-5112	BEARING Ø 17 (NSK 6003ZZ)	
103	100-5041	BEARING (NSK F688ZZ)	
104	220-5373	VOL CONT B-5K OHM	
104	220-5484	VOL CONT B-5K OHM	
105	350-5235	MOTOR AC100V 1250/1550rpm W/H	
105	350-5294	MOTOR AC100V 60W	
106	601-6172	GEAR 48	
107	601-6959	GEAR 64	
108	601-7487	TIMING BELT (150 5M 550)	
109	601-7488	TIMING BELT (100 5M 750)	
110	601-7489	PARTICLE CLUTCH BRAKE	
111	310-5029-F20	SUMITUBE F F20MM	
112	601-0460	PLASTIC TIE BELT 10mm	
114	209-0023	CONN CLOSED END	SMALL TYPE
201	020-000410-HZ	HEX SKT CAP SCR BLK OZ M4X10	
202	020-000512-HZ	HEX XKT CAP SCR BLK OZ M5X12	
203	060-S00400	SPR WSHR M4	
204	060-S00500	SPR WSHR M5	

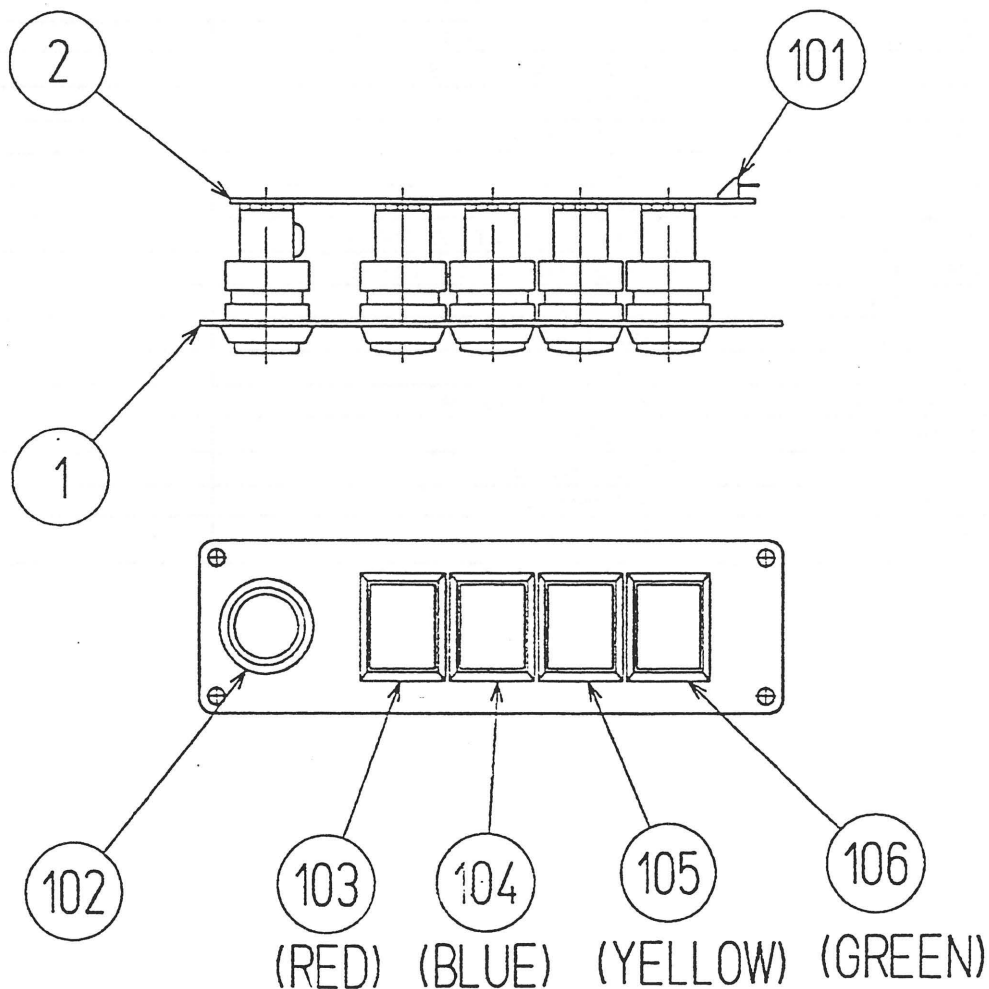


ASSY HANDLE MECHA (DYN-1250)

ITEM	PART NUMBER	DESCRIPTION	NOTE
207	000-P00408-W	M SCR PH W/FS M4X8	
208	000P00412-W	M SCR PH W/FS M4X12	
209	000-P00416-S	M SCR PH W/S M4X16	
210	000-P00508-W	M SCR PH W/FS M5X8	
211	060-F00600	FLT WSHR M6	
212	060-F00800	FLT WSHR M8	
213	065-E00700	E RING 7MM	
214	068-441616	FLT WSHR 4.4-16X1.6	
215	028-A00308-P	SET SCR HEX SKT CUP P M3X8	
216	028-A00408-P	SET SCR HEX SKT CUP P M4X8	
217	050-U00500	U NUT M5	
218	050-H00600	HEX NUT M6	
219	050-U00800	U NUT M8	
220	000-P00408-S	M SCR PH W/S M4X8	
221	000-P00310	M SCR PH M3X10	
222	060-F00300	FLT WSHR M3	
223	060S00300	SPR WSHR M3	
225	050-U00600	U NUT M6	



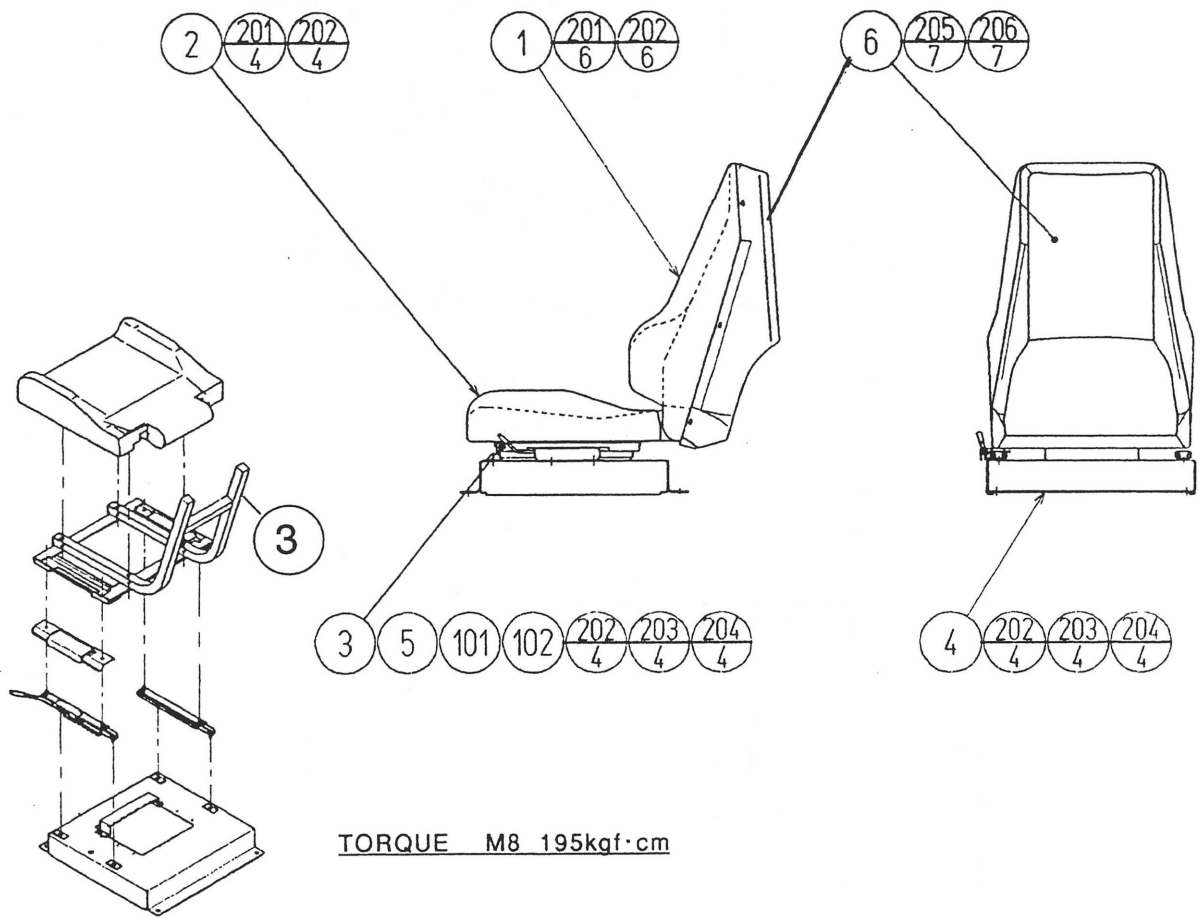
ASSY VIRTUAL BUTTON TWIN (DYN-1290)



ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYN-1291	VR BUTTON BRKT	
2	171-6478B	PC BD LIGHTING SWX5	
101	212-5205-12	CONN JST M 12P RTS	
102	509-5560-Y	PB SW W/L 6V 1L 7	YELLOW
103	509-5561-R	PB SW W/L 6V 5L R	RED
104	509-5561-S	PB SW W/L 6V 5L S	BLUE
105	509-5561-7	PB SW W/L 6V 5L Y	YELLOW
106	509-5561-G	PB SW W/L 6V 5L G	GREEN



ASSY SEAT TWIN

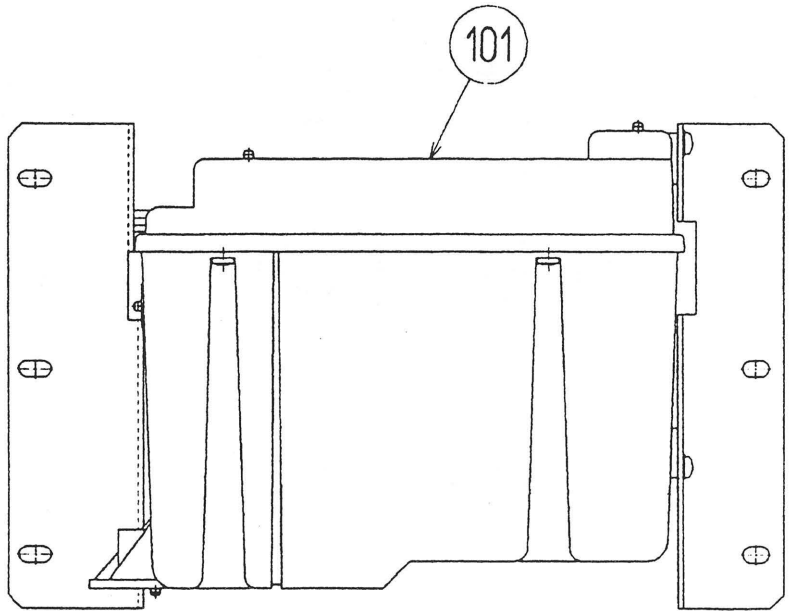
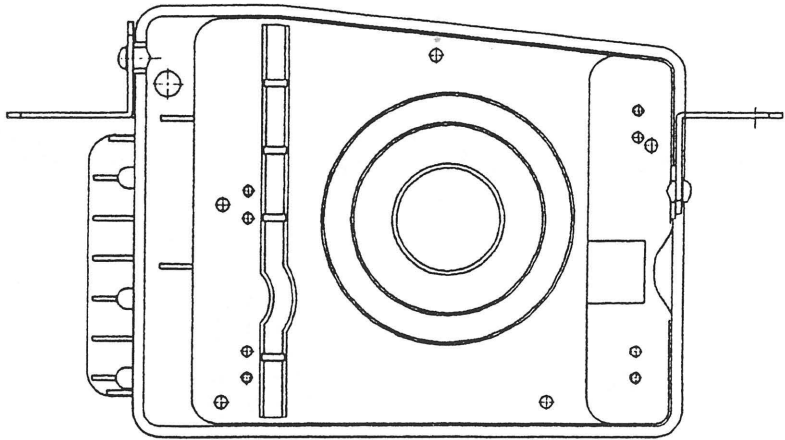


TORQUE M8 195kgf·cm

ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYNO-2131	UPPER SEAT	
2	DYNO-2132	LOWER SEAT	
3	DYN1-2081	SEAT FRAME TWIN	
4	DYN1-2082	SEAT BASE	
5	DYN1-2084	SEAT BACK COVER	
101	6011-7493	SEAT RAIL L	
102	6011-7494	SEAT RAIL R W ADJUSTER	



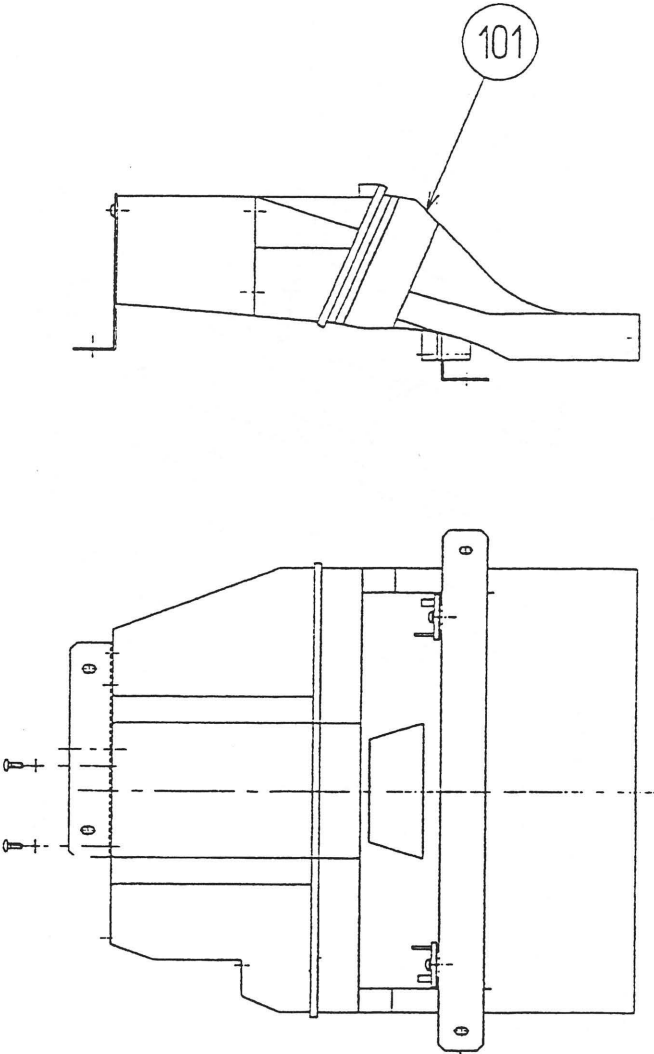
SEAT WOOFER



ITEM	PART NUMBER	DESCRIPTION	NOTE
101	130-5114	SPEAKER BOX SUB WOOFER	



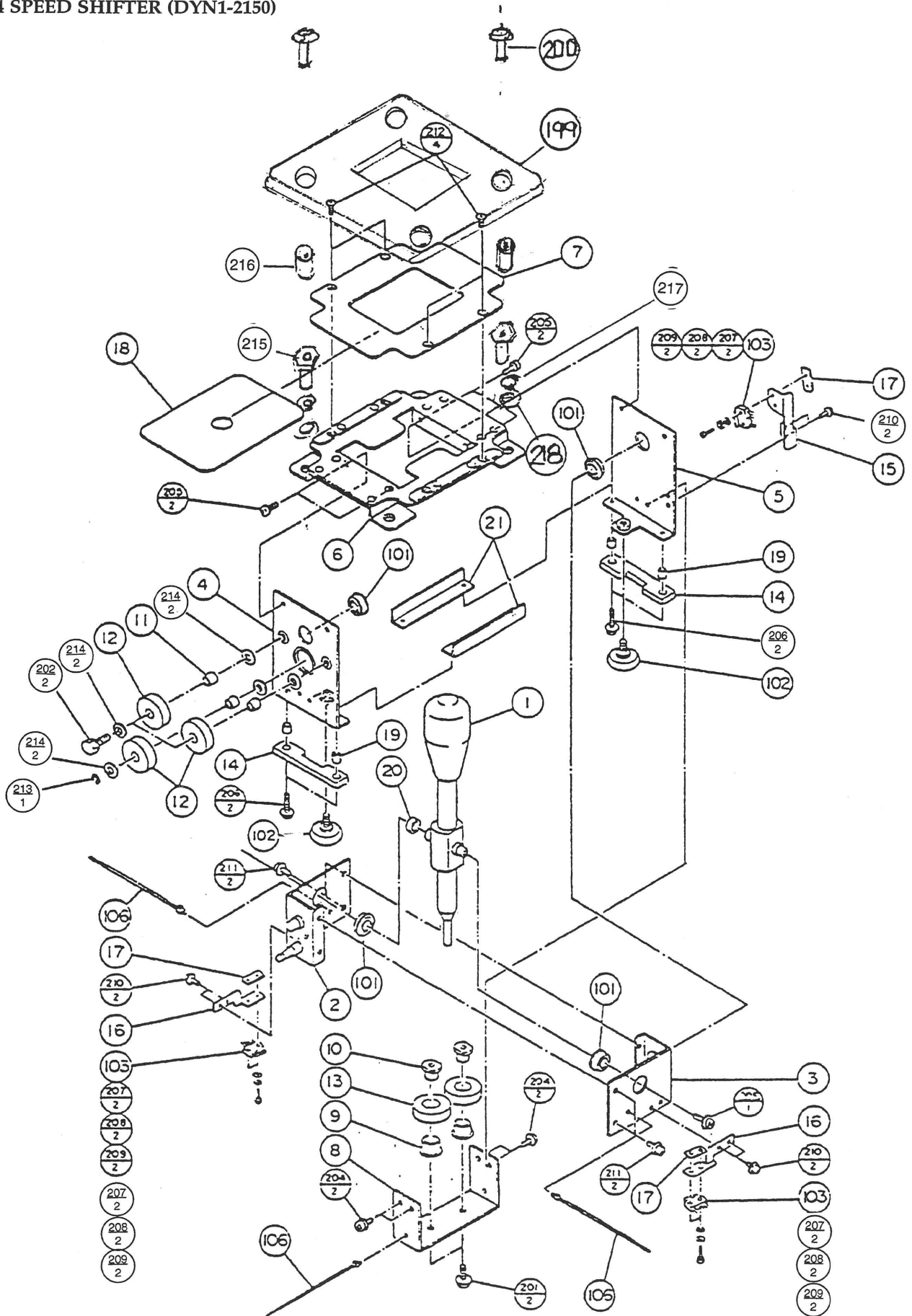
SPEAKER ASSEMBLY LEFT & RIGHT



ITEM	PART NUMBER	DESCRIPTION	NOTE
101	130-5113	SPEARKER BOX DOME	USED ON LEFT & RIGHT SIDES



ASSY 4 SPEED SHIFTER (DYN1-2150)



ASSY 4 SPEED SHIFTER (DYN1-2150)

ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYN4-2151	SHIFT KNOB	
2	DYN4-2152	SHAFT CASE FRONT	
3	DYN4-2153	SHAFT CASE REAR	
4	DYN1-2154	FRONT BASE	
5	DYN1-2155	REAR BASE	
6	DYN1-2156	UPPER BASE	
7	DYNO-5157	UPPER COVER	
8	DYNO-2158	ROLLER BRKT	
9	DYN1-2159	COLLAR Ø 10	
10	DYN-2160	ROLLER SHAFT	
11	DYN-2161	COLLAR Ø 6	
12	DYN-2162	RUBBER RING 70	
13	DYN-2163	RUBBER RING 80	
14	DYN-2164	RUBBER STOPPER	
15	DYN-2165	SW BRKT A	
16	DYN-2166	SW BRKT B	
17	DYN1-2167	NUT PLATE M2	
18	DYN-2169	SLIDE PLATE	
19	DYN-2170	COLLAR Ø 4	
20	DYN-2171	COLLAR Ø 8	
21	DYN1-2172	BOTTOM PLATE	
101	100-5041	BARING (NSK F688)	
102	100-5176	DERURIN BEARING Ø 26	
103	509-5566	SW MICRO TYPE (OMRON SS-5GLT)	
199		COVER, PLASTIC	
200		MSCR TMPPRF 8X32	
201		M SCR PH 10X32	
202		HEX BLT 1/4X20-12	
204		M SCR PH 8X32	
205		M SCR PH 8X32	
206		M SCR PH 8X32	
207		M SCR HP 2X56X06	
210		S-TITE SCR PH THD CUT 4X40	
211		S-TITE SCR PH W/F 8X32	
212		HEX THD CUT 8X32	
213		E RING 3/16	
214		LOCK WASHER	
215		MSCR HEX M8X1.25 W#8-32-TAP	SPECIAL: 8X32 HOLE IN CENTER
216		PLASTIC SPACER	
217		SPLIT LOCK WASHER	
218		FLAT WASHER	



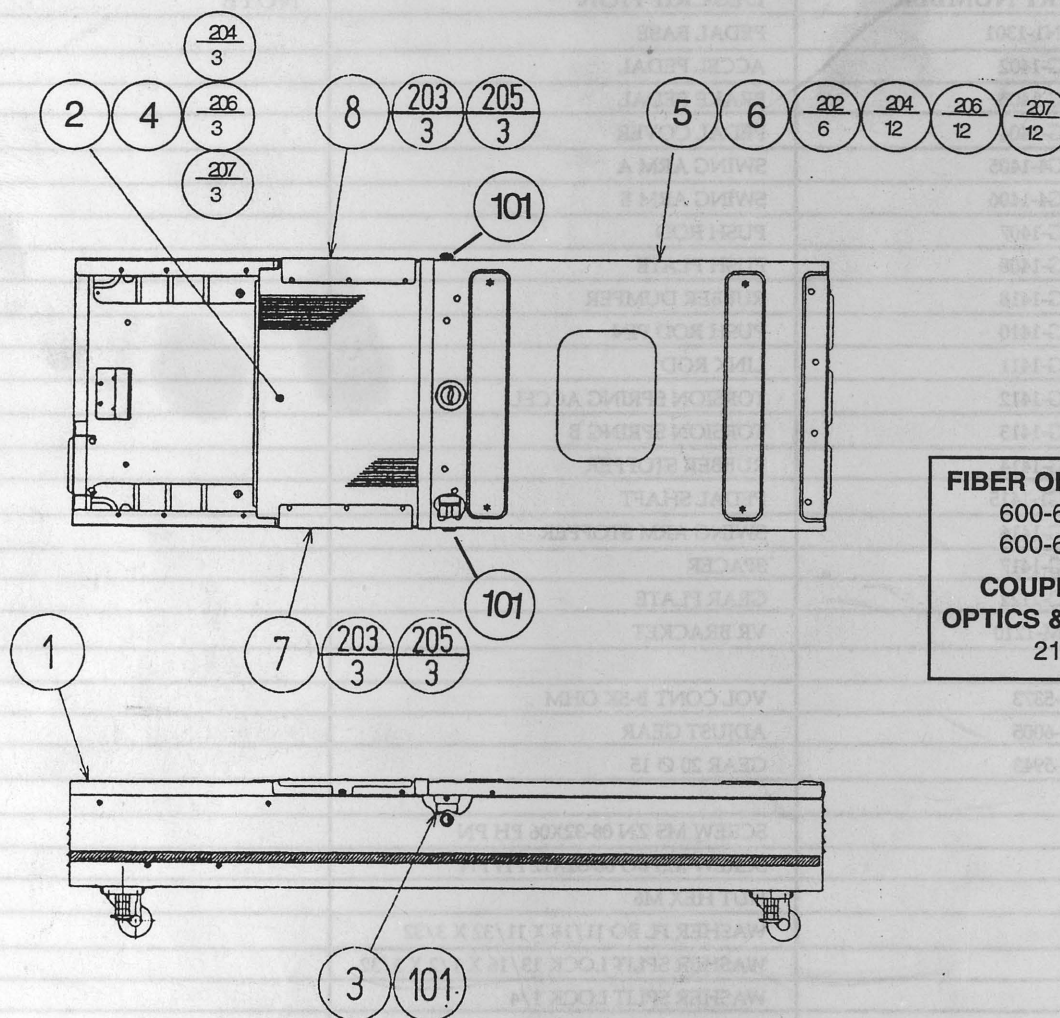


ASSY ACCEL & BRAKE

ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYN1-1301	PEDAL BASE	
2	BVG-1402	ACCEL PEDAL	
3	BVG-1403	BRAKE PEDAL	
4	BVG-1404	PEDAL COVER	
5	BVG4-1405	SWING ARM A	
6	BVG4-1406	SWING ARM B	
7	BVG-1407	PUSH ROD	
8	BVG-1408	PUSH PLATE	
9	BVG-1418	RUBBER DUMPER	
10	BVG-1410	PUSH ROD PIN	
11	BVG-1411	LINK ROD	
12	BVG-1412	TORSION SPRING ACCEL	
13	BVG-1413	TORSION SPRING B	
14	BVG-1414	RUBBER STOPPER	
15	BVG1-1415	PEDAL SHAFT	
16	BVG-1416	SWING ARM STOPPER	
17	BVG-1417	SPACER	
18	GLC-2122	GEAR PLATE	
19	RDM-1210	VR BRACKET	
101	220-5373	VOL CONT B-5K OHM	
102	601-6005	ADJUST GEAR	
103	601-5943	GEAR 20 Ø 15	
201		SCREW MS ZN 08-32X06 PH PN	
203		SCREW MS BO 08-32X12 PH PN	
205		NUT HEX M6	
206		WASHER FL BO 11/16 X 11/32 X 3/32	
207		WASHER SPLIT LOCK 13/16 X 1/2 X 3/32	
208		WASHER SPLIT LOCK 1/4	
209		WASHER SPLIT LOCK #8	
210		RING "E" 05133-25	
211		SCREW SET 30 M3X06MM	
212		WASHER FL 80 1/2 X 7/32 X 1/16	
213		WASHER FL 30 #8	
214	DYN-1305	FLT WSHR 12.2-22 X 0.5	
215		RING "E" 05133-18	



ASSY BASE BOX



ITEM	PART NUMBER	DESCRIPTION	NOTE
1	DYNI-2002	MAIN BASE	
2	DYNI-2003	BASE LID F	
3	DYNI-2004	LOCK TNG	
4	DYNI-2005	FLOOR MAT	
5	DYNI-2006	HINGE 480	
6	DYNI-2010	ASSY BASE LID R	
7	DYNI-2007	LID EDGE L	
8	DYNI-2009	LID EDGE R	
202	999-0168	LOCK & KEY #399	SCREW MS 5 ST 08-32X12 56 8T TP
204	031-000514-OB	BOLT CB S NP 010-32X20 SQ	
206	050-F00500	NUT LOCK ZN 010-24 ELHSS	
		WASHER FL ZN 1/2 O.D.	
	999-0309	LOCK CAM RIGHT	
	999-0310	LOCK CAM LEFT	

